

OUR MOUNTAINS

CHANDRIKA RAO

PUBLICATIONS DIVISION

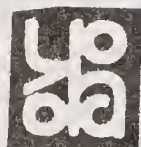


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INTRODUCTION

Our south Asian subcontinent is the home of the world's highest mountain range, besides a number of other mountain ranges and plateaus. We have in our vast country both fold mountains block mountains. The Himalayas that had risen from the sea millions of years ago, are our fold mountains; so are the mountains of north-east India that were formed through erosion from the Himalayas. All our other mountain ranges throughout the country are block mountains that were already in existence millions of years before the drift of Gondwana.

Having risen from the Tethys Sea which was earlier washing the southern shores of the then Asia, the Himalayas are not only the world's highest but also South Asia's youngest mountain range. India boasts of the world's third highest peak Kanchenjunga (28,208 ft.) located in Sikkim. Of course, the all famous world's highest Everest (29,028 ft.) is located in Nepal, with the north face in Tibet, while the second highest peak K2 (also called Godwin Austen) located in Pakistan, standing at well over 28,000 ft. Any number of Himalayan peaks towering well over 25,000 ft. are located in India.

Very heavy erosion consequent to the rise of the Himalayas from the ocean has resulted in the formation of smaller mountain ranges off the main Himalayas. We thus have the Shivaliks flanking the Himalayas, with valley formations in between (e.g. the Dun valley). Towards the extreme east where the erosion has been extremely heavy, the Shivalik

ranges have been extended hundreds of miles away from the main Himalayas of Bhutan and Arunachal Pradesh in a continuous chain along the Indo-Burma border as also in Meghalaya and different parts of Assam. The mighty Himalayas together with the Hindu Kush to the north-west and Indo-Burma border mountains in the east, have formed over millions of years the natural geographical boundary of our south-Asian sub-continent. We shall discuss further in the chapters ahead.

This sub-continent, distinct and reasonably insular from its neighbourhood, has within itself any number of diverse physical features. Its numerous block mountains and plateau formations have provided this distinct geographical entity with any number of diversities within itself. Thus India's historical and cultural unity in diversity has its firm base in the vast diversities within the distinct and well-defined geographical entity of south-Asia.

Among our principal block mountain ranges, are the Western Ghats flanking our east coast. Sandwiched in between, we have the rocky undulating tablelands known as the Deccan plateau. To the north-west of the Deccan and the Western Ghats turn east-wards into the Satpuda hills that finally terminate in the Vindhyas of west central India. North of the Satpudas and west of Vindhyas lies the Malwa plateau of western Madhya Pradesh extending northwards from the north end of the Eastern Ghat and beyond the north-eastern Deccan in Chhota Nagpur plateau of south Bihar. The plateau formations of the Deccan, Chhota Nagpur and Malwa are by no means perfectly flat tablelands. They are rocky undulating tablelands dotted with any number of small hill ranges here and there. And no reference to India's block Mountains can be completed without mention of the Aravali range extending south westwards from Delhi, across Haryana, Rajasthan and into Gujarat. Some of our less popular hillstations like Mount Abu and Panchmarhi are located in the Aravalis and the Satpudas respectively.

As the highest of all our block mountain ranges, the Western Ghats act as an umbrella to rain shadow the Deccan from the torrential south-west monsoon rains. Standing at nearly 9,000 ft., Doddabetta peak near Ooty in the Nilgiri Hills of the Western Ghats is the highest peak among all our block mountains. The northern and central portions of the Western Ghats flanking or even touching the Konkan coast are known as the Sahyadris. Anyway different perceptions exist regarding the extent of the Sahyadris, as also the extent of the Eastern Ghats flanking our east coast at an appreciable distance. For instance, Bill Aitken is of the view that the Sahyadris include the entire Western Ghats. In his opinion the Nilgiris are not part of the Western Ghats. However, observations of many others seem to confirm fairly distinct Deccan, Western and Eastern Ghat formations even in the extreme south peninsula. Their observations of the land contour seem to confirm the view that the convergence of the Western and Eastern Ghats is indeed quite close to Cape Comorin. But whichever of the two perceptions we accept, the fact remains that flanking our vast coastline, the Western and Eastern Ghats together are among our most prominent block mountain formations.

ORIGIN OF MOUNTAINS PHYSICAL FEATURES AND CLIMATE

It is indeed our mountains that have provided our south Asian sub-continent its vast diversities with such a rich variety of physical features. Our mountains are the source of all our major rivers, besides providing the country a great variety of climatic zones. On the Himalayas we have such vast climatic diversities from the moist subtropical and warm temperate climes of the foothills and lower valleys, to the cool temperate climes of the famous hill-stations and finally on to the frigid zones of the higher altitudes above the snowline. Our other mountains provide salubrious cool temperate zones within the tropics, being the home of famous hill-stations from Kodaikanal in the south to Mount Abu in the west.

With their forest cover and wide variety of flora and fauna, our mountains make our landscape so colourful. They have for ages provided ideal seclusion to anybody going for meditation, relaxation, adventure or otherwise. India without its mountains will indeed be so flat (literally and figuratively)!

Through the ages we have thus come to accept our mountains as a most essential part of our country. Yet now often do we stop to think of the way our mountains came up in a hoary past, millions of years ago. We all know the South Asian subcontinent to be the home of the world's highest mountain range, besides number of other mountain ranges and plateaus.

The very origin of our mountains is so interesting and fascinating,

related as it is to the great drift of continents 130 million years ago. India (and indeed the entire south Asian subcontinent) was earlier a part of the vast southern continent Gondwana. The great northward drift of a definite chunk of land mass across the vast southern ocean and Indian Ocean took place over millions of years. The drift of this landmass of approximately the area and shape of the present south Asian subcontinent towards the then existing Asia, threw up the Himalayas from the mighty ocean. The force of this drift has even to this day sustained the powerful northward thrust of south Asia on the rest of Asia. That is why the Himalayas are still growing from height to height.

While the Himalayas have thus come up as fold mountains, our other mountain ranges which already existed as Gondwana's block mountains and plateau formations drifted along with south Asia, retaining their original heights, shapes and positions within this drifting land mass. Being block mountain and plateau formations, they were already very much in existence, and have undergone no major geological change.

While the rise of the Himalayas from the ocean is a fact well established by geologists, a very interesting aspect of Everest's different names rarely seems to catch anyone's imagination. The world's highest peak had different names¹ in different countries before George Everest's detailed survey in 1841, which for the first time established its location and approximate altitude. On our Indian side this peak was known as Gauri Shankar, while many surveyors named it Peak XV. The Tibetans called it Chomolungma (Goddess Mother of the Winds). In the light of the piercing winds and terrible blizzards (encountered by so many Everest expeditions) one can well imagine how appropriate the name Chomolungma is. Yet what is most interesting is Everest's original Nepali name Sagar Martha, which means the forehead of the sea. This naturally arouses some very curious questions. Had our ancient Indian or Nepali geologists already established the fact or at least put forth the

1. This is indeed a topic that can prove very interesting for joint study and in depth analysis by geologists and anthropologists together with psychologists and philosophers

theory of the drift of Gondwana? Is it this, which is reflected in Nepali tradition in any way?

Very heavy erosion consequent to the rise of the Himalayas from the ocean has resulted in the formation of smaller mountain ranges off the main Himalayas. We thus have the Shivalik ranges flanking the Himalayas with valley formations in between (e.g. the Dun Valley). Towards the extreme east where the erosion has been extremely heavy the Shivalik ranges have extended hundreds of miles away from the main Himalayas of Bhutan and Arunachal Pradesh in a continuous chain along the Indo-Burma border as also Meghalaya and different parts of Assam. We thus have a continuous chain of mountains leading away from the Arunachal Himalayas, along Tirap Division of Arunachal Pradesh, Nagaland, Manipur and Mizoram, into the Chittagong hill tracts of Bangladesh. Likewise we also have (from west to east) the Garo hills, Khasi hills and Jaintia hills of Meghalaya and the Mikir hills of Assam's Karbi Anglong district and the hills of Assam's north Cachar district. The mighty Himalayas together with the Hindu Kush to the north-west and the Indo-Burma border mountains in the east have formed over millions of years the natural geographical boundary of our South Asian Subcontinent. As pointed out by K.M. Panikkar in his *Survey of Indian History*, this geographical unity of the subcontinent and its appreciably natural insularity from the neighbouring countries, has facilitated over the millennia the evolution of a common historical and cultural background throughout south Asia.¹

This Subcontinent, distinct and reasonably insular from its neighbourhood, has within itself any number of diverse physical features. Its numerous block mountain and plateau formations have provided this distinct geographical entity with any number of diversities within itself. Thus India's historical and cultural unity in diversity has its firm base in the vast diversities within itself.

We thus see the great variety and wide diversity of climate and physical features resulting from the numerous mountain ranges that

adorn the landscape of our great country. We shall now consider each mountain range, its characteristics and its influence on our climate.

The Himalayas

Extending over 4,000 Kms(2,500 miles) from Gilgit in the west to Lohit in the east, the Himalayas are indeed like a great wall of India. From the Pamir knot in the Gilgit region of our extreme north, the Hindu Kush mountains extend south westwards along the subcontinent's north western boundary, while the Himalayas extend south eastwards forming India's impregnable northern boundary. Thanks entirely to the Himalayas our northern and north eastern boundaries were absolutely safe from foreign invasions till the Chinese aggression in the then NEFA and Ladakh sectors in 1962. History tell us that starting with the large scale Aryan settlements (perhaps invasions) in the Indus valley 4,000 years ago, all overland invasions or major population migrations into India have been through the wide north west passes of the Hindu Kush. Most invasions were through the Bolan pass and Khyber pass, with hardly any invasion through the Kurram pass in the extreme north, which was mostly a silk trade route. This is not to suggest that there were no population movements at all through the Himalayan passes of the north and north-east in the past. Anthropological studies have surely indicated influxes of Mongolian races into our north eastern hills, especially Arunachal Pradesh as also into Bhutan, Sikkim and even Nepal. But these were very gradual population migrations taking place over so many millennia. The Kurram pass and other less difficult passes of the Kashmir sector have sustain the silk trade between India and China, while the Kumaon passes in the Uttaranchal Himalayas have sustained pilgrimages to Mount Kailas and Mansarovar Lake in Tibet. But all such passes had in the past proved far too difficult for invasions or large scale rapid population migrations, which were thus restricted to the north-west passes. And some of the most difficult passes hitherto untread, like the Shimshal and Mustagh passes through the Karakoram Himalayas of Kashmir, were explored for the first time by Francis Younghusband

in the late 19th century. We shall discuss this in detail in the chapters ahead.

One can well understand what a keen impact the great Himalayan range has on the subcontinent's climate, particularly across the vast Indo-Gangetic plain and our north-eastern region. The Himalayas indeed play a key role in the effective precipitation of the rain-laden clouds of the south-west monsoon's Bay of Bengal current every year. It can be seen from any map that the Himalayas' southern most portion lies in the north Bengal sector, with Kalimpong, Kurseong and Darjeeling as the southern most among our Himalayan hill stations. From the north Bengal hills one portion of the Himalayas runs north-west across Nepal, Kumaon, Garhwal, Himachal Pradesh and Jammu and Kashmir. The other portion runs east-north eastwards across Sikkim, Bhutan and Arunachal Pradesh. It is thus seen how the Himalayas give the two currents of the Bay of Bengal monsoon the right directions for maximum precipitation with widespread coverage. The south-west monsoon's Bay of Bengal current, already guided northwards by Burma's Arakan mountains, enters Bengal and moves on to the Himalayas. Guided by the Himalayas, one current branches off north eastwards into our north eastern region. The other current is guided north westwards across the Indo-Gangetic Plain by the Central and Western Himalayas. An interesting fact of which many of us are not consciously aware is that in the Western and Central Himalayas and the vast Indo-Gangetic plain it is a de facto south-east monsoon that brings the rains, though the name remains southwest monsoon. Thus the Himalayas effectively precipitate the heavy rains of the south-west monsoon's Bay of Bengal currents, and totally rain shadow Tibet and central Asia located further north. The maximum precipitation is at the foothills and atop the first line of the main Himalayas.

It also gives without saying that the rainfall along the eastern Himalayas is even far greater than along the western Himalayas. Likewise in the plains too the rainfall is much higher in the north-eastern plains and the lower most parts of the Gangetic plain than in the Upper

Gangetic plain or in the Indus Valley. As a rule there is no doubt about it that both nearness to the Bay of Bengal and nearness to the Himalayan foothills as well as the watershed of the first line of Himalayas are conducive to greater precipitation during the monsoon. Needless to say, the Shivaliks and the various north-eastern hill ranges too play a very significant role in the heavy precipitation of the rain a monsoon from the Arabian Sea. Obviously the Aravalis play no effective role in either casting a rain shadow or helping precipitate the south-west monsoon rains. The south west monsoon from the Arabian Sea skirting along the Aravali Range becomes a spent force by the time it moves across north-west India towards the Western Himalayas. In contrast, the de facto south east monsoon from the Bay of Bengal, guided up the Gangetic Plain optimal by the Himalayas still retains its basic vitality even after moving hundreds of miles inland. Thus it is interesting to note that although north-west India is somewhat closer to the Arabian Sea than to the Bay of Bengal, it is nevertheless the Bay of Bengal monsoon which is more effective here (though even the Arabian Sea monsoon winds do succeed in reaching this region).

We have already seen how the entire Himalayan range totally rain shadows Tibet and Central Asia. It is also seen that the first line of the Himalayas which causes extremely heavy rainfall considerably shadows the valleys of the inner Himalayas. A good example of this is to be found in the Pir Panjal Range which separates Jammu from Kashmir Valley. It will be appreciated that the Bay of Bengal monsoon's effect is considerably reduced by the time it reaches north-west India, though it is by no means a spent force. In these circumstances the Pir Panjal Range which causes a lot of precipitation on the Jammu side is able to very effectively rain shadow Kashmir valley which gets only the residual rains of the monsoon. Though the monsoon is by no means ineffective in the Kashmir Valley the rainfall pattern here is rather unique. For instance in Srinagar October is the driest month, with March being the wettest month. The maximum precipitation in Kashmir Valley is in March, not even in July-August.

Now let us see the role of the Himalayas in acting as a most effective wind shield to the subcontinent in winter. It is a well-known fact that thanks entirely to the Himalayas our subcontinent is nicely sheltered in winter from the icy winds sweeping across northern and central Asia. Thanks no doubt to the dry continental climate, northern and parts of the Central India too get pretty cold in winter. Yet this winter cold in our North Indian plains is nothing compared to the freezing winter chill at the very same latitudes in the plains of China. For instance even in January the coldest places like Amritsar in our north-western plains rarely ever record temperatures below -3 degrees C. Even that happens only during severe cold waves when the dry, chilly continental winds blow over with unusual vigour across the north-west passes. On the other hand any place at Amritsar latitude anywhere in the landlocked regions of the Chinese plains will on an average record several degrees of frost at mid winter; i.e. the average night temperature will be several degrees below zero.

We are all familiar with the fact of the eternal snow and towering heights of any number of peaks of the world's highest mountain range. Many of us would have surely heard of the splendid and magnificent snow views even at midsummer from any number of our Himalayan hill-stations at moderate altitudes even when we have not been fortunate enough to actually have a glimpse of the eternal snows. Anyway how many of us are aware of the wonderful (and tempting) snow views from several places in our hot and steamy plains right at midsummer? Yes, this is easily possible from some places in our north-eastern plains. For instance, from the plains of Cooch Behar District of West Bengal one can get a splendid view of Kanchenjunga far to the north-west. We all know the Kaziranga Sanctuary in Assam, famous for the one-horned rhinoceros. But in crystal clear conditions Kaziranga sandwiched between the Mikir hills to the south and the Brahmaputra to the north also affords magnificent glimpses of the Himalayan snow peaks of Arunachal Pradesh well over 100 miles to the north. Tezpur on the Brahmaputra's north bank in Assam is another place for wonderful

glimpses of the Himalayan snow of Arunachal Pradesh. One can well imagine how immensely tempting such spectacular snow views must be to anyone boiling away at midsummer in the steamy plains below.

The Himalayas are the source of all the snow fed rivers flowing through the northern and eastern regions of our subcontinent. The Ganga and its major tributary, the Jamuna, rise in the Gangotri and Jamunotri glaciers in the Garhwal Himalayas. The Kosi and the Ganga rise in the Kumaon Himalayas, flowing past the Jim Corbett National Park. The Indus and all its five tributaries, the Sutlej, the Beas, the Ravi, the Chenab and the Jhelum all rise in the Western Himalayas of Jammu and Kashmir and Himachal Pradesh. The Sutlej, the Beas and the Ravi rise in Himachal Pradesh while the Chenab, the Jhelum and the Indus rise in Jammu and Kashmir, with the Indus itself having its source in the Ladakh region. The Brahmaputra on the other hand rises in Mansarovar Lake beyond the Kumaon Himalayas and flows eastwards across Tibet where it goes by the name Tsang Po. On entering India through the Himalayas of Arunachal Pradesh it changes its name to Siang, taking on its name Brahmaputra as it enters the Assam plains at Saidya Ghat. Its principal tributaries from the North, viz. the Kamengh the Subansiri and the Lohit all rise in the Himalayas of Arunachal Pradesh. Unlike the Ganga, the Brahmaputra has any number of tributaries from the south, rising in the lower mountain ranges of north-east India. Significant among such tributaries, we have the Dhansiri which rises in Nagaland and the Kopili and the Belsiri which rise, in Meghalaya's Jaintia hills. The Ganga's principal tributary from the south is the Sone which rises in the hills adjoining the Chhota Nagpur Plateau and flows into the Ganga about 30 miles west of Patna. The Damodar and Rupnarayan, the confluence of which flows into the Ganga's principal distributary, the Hoogly, also rise in the Chhota Nagpur area. The Chambal and the Betwa are the Jamuna's tributaries from the south, rising in the Aravalis. But for these, one can say that the tributaries of the entire Ganga system are the snow fed Himalayan rivers that water the hot thirsty plains even through the dry summer months from March to June.

The Himalayas are the home to many of our famous hill-stations which have come up mainly as summer resorts but have in some cases developed as winter sports resorts too. The British established most of them as salubrious summer resorts at moderate altitudes between roughly 6,000' and 8,000' for a welcome retreat from the torrid summer heat in the plains. Some others have developed even in the years since Independence. Among the principal Himalayan hill-stations from east to west we have Bomdila in Arunachal Pradesh, Gangtok in Sikkim, Darjeeling, Kurseong and Kalimpong in West Bengal, Naini Tal, Almora and Ranikhet in Uttaranchal's Kumaon Himalayas, Mussoorie and Uttarkashi in Garhwal Himalayas of Uttaranchal, Shimla, Kasauli, Manali, Dalhousie and Dharmshala in Himachal Pradesh and Srinagar, Gulmarg and Pahalgam in Jammu and Kashmir. At places like Uttarkashi at just 4,000' it can be quite warm at midsummer, but it is by no means unbearably hot as in the plains below. Similar is the situation at Srinagar and even to an extent at Kurseong and Kalimpong, where the altitude is below 5,000'.

During British rule Shimla was the summer capital of British India. The provincial summer capitals included Dalhousie for Punjab, Nainital for Uttaranchal and Darjeeling for Bengal. However, as the all India summer capital, Shimla naturally acquired special importance among our hill-stations.

Shimla however has one very special geographical significance of which many of us are not aware. It is located on that ridge which separates the water flowing into the Bay of Bengal from the waters flowing into the Arabian Sea. Himalayan river rising south of Shimla becomes part of the Ganga (or else the Brahmaputra) system whose waters pour into the Bay of Bengal. On the other hand any Himalayan river rising north of Shimla becomes part of the Indus system whose waters flow into the Arabian Sea.

As already mentioned, the world's highest peak Everest is 29,028ft. (8,848m). However, it is the world's third highest peak Kanchenjunga which is India's highest peak, towering to 28,208 ft. In many ways

Kanchenjunga may pose climbers even stiffer challenges than Everest by virtue of its treacherously steep precipices and highly uncertain weather conditions that are even trickier than what one may encounter on Everest. While Tiger Hill (8,600 ft.), the highest point in Darjeeling, affords one a wonderful Everest view on a clear day, a spectacular Kanchenjunga view can be had from Darjeeling proper itself and even from the North Bengal plains in Cooch Behar District. Before Sikkim's accession to India in April 15 it was Nanda Devi (25,689 ft.) in the Kumaon Himalayas which was India's highest peak. Nanda Devi is worshipped as a folk goddess in the Kumaon region and even to some extent in the Garhwal region of Uttaranchal state. The famous Badrinath and Kedarnath Temples are in the Garhwal Himalayas at 10,500ft and 11,000ft respectively. The Badrinath and Kedarnath peaks are 22,901ft. and 22,853ft respectively.

We shall talk about some more of the towering Himalayan peaks as well as difficult Himalayan passes in the next chapter. However, no discussion on the Himalayas can be complete without mention of the national parks or sanctuaries situated at or near the Himalayan foothills. For instance India's first national park, viz. Jim Corbett National Park is close to the foothills of the Kumaon Himalayas in Uttaranchal, while the Manas Sanctuary in Assam is close to the foothills of the Bhutan Himalayas. Though not located on the hills there is no doubt that it is nearness of the Himalayan foothills that creates the right kind of soil and climatic conditions to sustain the flora and fauna of the sanctuaries or national parks.

OUR NORTH-EASTERN MOUNTAINS

As already mentioned, these mountains like the Shivaliks off the main Himalayas, had been formed by extremely heavy erosion from the Himalayas as they rose from ocean. As such, our north-eastern mountains too belong to the category of fold mountains.

There are clearly two distinct chains of these fold mountains of north-east India. One is an unbroken chain extending south-south westwards from the east end of the Himalayas across Tirap division of Arunachal Pradesh and through Nagaland, Manipur and Mizoram into the Chittagong hill tracts of Bangladesh. The watershed of this mountain chain forms the natural geographical boundary between north-east India and Upper Burma; and it is this natural boundary which is taken as the Indo-Burma border. These mountains act as an umbrella, effectively trapping the rain laden clouds of the south-west monsoon from the Bay of Bengal. Their directions help guide the monsoon nicely towards India's eastern-most Lohit district in Arunachal Pradesh. Naturally it is these mountains which rain shadow the plains of Upper Burma. The other chain extends eastwards from Meghalaya's Garo hills in the west through the Khasi hills and Jaintia hills of Meghalaya. Along Meghalaya this is an unbroken chain of mountains. But further east there is a break in the chain till one comes to the Karbi hills (Mikir hills) of Assam's Karbi Anglong district; thereafter the broken chain turns south-east into Assam's North Cachar district.

The unbroken mountain chain along the Indo-Burma border is

highest at its north end in Tirap district of Arunachal Pradesh. The height comes down progressively as one moves southwards, being at its lowest in the Chittagong hill tracts and to some extent in Mizoram. Consequently in Arunachal Pradesh's Tirap district there are quite a few high mountains above 10,000 ft, which are thickly snow-clad through the winter months. Coming to Nagaland we find the mountains are lower, with very few snow covered even at mid winter. Only Mati, the highest peak in Nagaland, which is 12,483ft. above sea level, is thickly snow-capped through the winter months. For tourists interested in going atop this peak from November to March arrangements are made for army escort, and that too only after making doubly sure of the safety and advisability of going up. Till the thaw is complete in early April the free movement of tourists up this peak can be very risky. However, for the rest of the year the peak is open to tourists.

Further south in Manipur snowfall is rather rare even atop the highest mountains. It may snow once in several years. As for Mizoram frost and snow are totally unknown. Here though the terrain at some places is rugged and difficult, the altitude is appreciably reduced. This coupled with the lower latitude (the tropic of cancer runs through Mizoram) makes the Mizoram winters very moderate. The western slopes of this entire mountain chain precipitate all the monsoon rains on the Indian and Bangladesh side, Upper Burma being on the leeward side.

Meghalaya's Garo hills, Khasi hills and Jaintia hills flank the Indo-Bangladesh border. The southern slopes of these Meghalaya hills facing Bangladesh trap the most heavily rain laden of the south-west monsoon clouds from the Bay of Bengal. Consequently southern Meghalaya is one of the wettest regions anywhere. Besides the world's wettest place Cherapunji with over 1,000cms of rain annually, even the world's second wettest place, Mawsynram is located in Meghalaya and gets an annual rainfall of over 1,000cms.¹

1.U.Hamlet Bareh, *Meghalaya*, P.17

The Meghalaya terrain is mostly smooth, with gentle slopes covered with rolling meadows here and there. The only exception in this regard is the sheer drop into the Bangladesh plains from the southern Khasi-Jaintia boundary. The hills here are not very high. The highest mountain in Meghalaya (and in the entire chain from Garo hills to North Cachar) is Shillong peak (6,445 ft.) while the hill-station Shillong is at 5,000ft. The Meghalaya climate ranges from sub-tropical at the foothills to warm temperate at higher altitudes as at Shillong. As a rule the climate higher up on the Khasi and Jaintia hills is salubrious, with cold winters and summers that are pleasant or just warm. On the other hand the Meghalaya foothills experience the hot, damp summers of the adjoining plains (of Assam or Bangladesh), with just pleasant winters. Again, the Garo hills which are much lower have generally hot summers and pleasant winters, but for the generally pleasant climate of the Simsang valley. For instance the West Garo hills district head quarter Tura is just 1,300ft. The highest hill in the Garo hills is Norkek peak (4,652ft).¹ As already mentioned, the entire southern Meghalaya facing Bangladesh has extremely heavy rainfall. The March-April hailstorms usher in the pre-monsoon condition, which leads on to the monsoon in early June. The monsoon is over before mid October. In winter and even during springtime gales thick mist envelopes many places including Cherapunji, Simsang valley, Syndai and Lankyrdem. Shillong itself is often under thick mist through winter.

Many of the Meghalaya peaks afford splendid views of valleys and ranges scattered in different directions, as also of the Assam and Bangladesh plains towards the horizon, with any number of rivers flowing towards the plains. Most of the hills and gorges are beautifully clad in verdant evergreen vegetation, replete with orchids, wild flowers and botanical resources of great variety.

Southern Meghalaya is replete with rock caves. In the Khasi and Jaintia hills we have the Syndai caves, the Mawsynram caves and the Lumlawbah caves at Cherapunji. These caves which are several miles

1. U. Hamlet Barch, *Meghalaya*, P.5

long have any number of stone images of household articles. The Garo hills rock caves provide wonderful glimpses of mysteries concealed in nature. The most interesting of these are the world famous rock caves of bats near Siju village.¹

Going into finer details of the Meghalaya terrain and its physical features, the outermost ranges of the Khasi and Garo hills extend with gaps into Bangladesh's Mymensingh district from Meghalaya's southern boundary. Northern Meghalaya is hilly; the foothills gradually lower themselves northwards before merging into the Assam plains. This becomes clearly evident during road journey between Guwahati and Shillong, when one hardly ever feels the impact of any steep ascent or descent. Altogether the highest of Meghalaya's three hill ranges are the Khasi hills. The Khasi-Jaintia middle plateau is hemmed with valleys, flat lands and rolling meadows that add to the scenic beauty. Many such lands have been converted into terraced or even flat paddy fields. The Tura range occupies the middle portion of the Garo hills.

The Meghalaya hills are a major source of several rivers. While the southern rivers flow into Bangladesh, the northern rivers flow into Assam with some of them being the Brahmaputra's prominent southern tributaries. The Damring is the principal tributary of the Brahmaputra which rises in the Garo hills south of the Tura range. Many of the northern rivers rising in the Khasi hills and Jaintia hills are the southern tributaries of the Brahmaputra in Assam's Kamrup and Nowgong districts respectively. Significant among them is the Kopili rising in the Jaintia hills and flowing into the Brahmaputra in Nowgong district. The Belsiri is another such river. The rivers are mostly full, forming beautiful and forceful waterfalls² at the precipitous portion of the hill ranges. Famous waterfalls, well-known to tourists, are located around Shillong and Cherapunji. They include the Bishop's Falls, the Elephant Falls, the Spread Eagle Falls, the Crinoline Falls, the Beadon Falls and the Sweet Falls near Shillong, and the Dainthlen Falls, the Myntriang Falls, the

1.U.Hamlet Bareh, *Meghalaya*,P.9

2.U.Hamlet Bareh, *Meghalaya*,P.9

Tyrshi Falls and the Ryingki Falls of Jaintia hills district.¹ Other beautiful waterfalls (not noticed for a long time) are the Kshaid Mawkhor Falls, 10 kms from Mawsynram. The Weisyntai Falls are diverted by a crag (near Tyngnger village) into two channels, and the waters joining below dig out a deep big pool. Likewise the waters of the Umrem Falls near Mawlong flow down a precipice, getting cloved apart to join again at the bottom. The most famous waterfalls in the Garo hills are the Khanchrurisik Falls, the Mokma Falls, the Rongband Falls and the Chibok Falls. The Mrig Falls, the Warima Falls and the Radingsa Falls are located on the Garo hills' southern slopes. Located in picturesque spots, Meghalaya's beautiful falls have been traditionally described as the abode of nymphs and fairies.² Indeed Meghalaya's beautiful mountains have inspired many folk tales.

We have already seen how our Subcontinent, distinct and reasonably insular from its neighbourhood, has within itself any number of diverse physical features. Its numerous block mountain and plateau formations have provided this distinct geographical entity with any number of diversities within itself. Thus India's historical and cultural unity in diversity has its firm base in the vast diversities within this distinct and well defined geographical entity of South Asia. We shall now enjoy ourselves moving through the numerous block mountain ranges of our country, all of which have moved along with our South Asian Subcontinent as it drifted across the vast ocean to its present position.

The Aravalis

The Aravalis extend south westwards from the Delhi ridge across Haryana, Rajasthan and into Gujarat's easternmost portion. Located mostly in Rajasthan, the Aravalis are indeed like the very backbone of Rajasthan. Rajasthan without Aravalis may perhaps be likened to a man without a backbone. In his book entitled *Rajasthan*, Dr. Dharm Pal points out how Rajasthan's physical features are dominated by the Aravalis

1. & 2. Hamlet Bareh, *Meghalaya*, P.10

which intersect Rajasthan from end to end, straddling across its plains like a curved scimitar*. The Aravalis' total length from the Delhi ridge to Eastern Gujarat is 692 kms. However, the Aravalis form an unbroken chain only from their south west end in Gujarat up to Khetri in Rajasthan's Jhunjhunu district. Beyond Khetri detached hills dot the landscape right up to the Delhi ridge. Interestingly indeed, the north-east end of the Delhi ridge itself is locally called Khyber pass, though located over 1,100 kms south-east of the all famous Khyber Pass.

The loftiest and most clearly defined portion of the Aravalis' unbroken chain is between Mount Abu and the Ajmer area. Beyond Ajmer the successive hills stretch past the Sambhar Lake north eastwards through the Jaipur area up to Khetri. Even the portion from Ajmer to Khetri, though by and large continuous, does have its gaps as at the Sambhar Lake and east of Sikar. At such portions the sand dunes are able to extend even over the eastern plains right up to Jaipur. However, between Mount Abu and the Ajmer area the unbroken chain stands like a barricade, affording a most effective sand protection to the region located south-east of the Aravalis. The highest mountain in the Aravalis is Guru Shikhar (1,727) near Mount Abu.

Besides the Aravalis there are many other hill ranges in Rajasthan which are not so important. Alwar and Jaipur are located among groups of hills more or less connected. We also have one range of hills near Bharatpur, south of which we get the Karauli hills. To the south-west there is a low but very well defined range running from Mandalgarh (north-east of Udaipur), across the Bundi area towards Indargarh near Kota. The Mukandwara range runs across Kota district from the Chambal to beyond Jhalarpatan.

As pointed out by Dr. Dharm Pal¹, the Aravalis divide Rajasthan into two natural divisions with three fifths of Rajasthan to the north-west of the Aravali range and two fifths to the south-east. Here lies the main significance of the Aravalis, of which most of us are hardly ever

1. Ibid, Chapter 1

consciously aware. True, the Aravalis may do precious little to precipitate or optimally guide the south-west monsoon from the Arabian Sea, yet it is this very same Aravali range which effectively halts the southward and eastward march of the Thar desert of West Rajasthan.

Thanks entirely to the Aravalis there are two clearly distinct geographical and climatic zones of Rajasthan. The large zone north-west of the Aravalis is mostly a desert region with a terribly dry and extreme climate. In the heart of the desert sub zero temperatures can be recorded at midwinter, while midsummer temperatures can soar above 50 deg.C. For most of the year the day-night contrasts in temperature are also tremendous. On the other hand Rajasthan's smaller zone, south-east of the Aravalis is fertile with a comparatively moist and moderate climate. Even in this zone no doubt the climate is surely dry and extreme compared to what we may expect in any coastal area. Yet the extremes are nothing compared to the larger zone across the Aravalis. Thus the Aravalis particularly on the totally unbroken chain provide a most effective wind shield, which shelters south-east Rajasthan and western Madhya Pradesh's adjoining Malwa plateau from the terribly dry desert winds that are burning hot in summer and intensely cold in winter.

Needless to say, Mount Abu is the tourists' summer paradise nestling atop the Aravalis. With its bracing climate and splendid scenery Mount Abu can also be clubbed together with the country's highly coveted hill-stations. The delightful picnic spots and places of picturesque scenery around Mount Abu include Guru Shikhar, Sunset Point, two lakes viz. Nakki Lake, and Trevor Tal. But this summer resort is most famous for the Dilwara temples. These are Jain temples chiselled out of pure white marble. With their beautiful carvings, they are among the most elegant specimens of marble work in India.

Western and Eastern Ghats

From the Aravalis of our landlocked north region let us now move

on to the block mountain ranges flanking most of our coastline, viz. the Western Ghats and the Eastern Ghats. The Western Ghats flanking our west coast (except the Gujarat coast) and the Eastern Ghats flanking our east coast (except the Bengal coast) are the largest and most prominent among our block mountain ranges. Sandwiched in between, we have the rocky undulating tablelands known as the Deccan Plateau.

To the north-west of the Deccan the Western Ghats turn east-north eastwards into Satpuda hills that finally terminate in the knot that forms the Vindhyas of the west-central India. North of the Satpudas and west of the Vindhyas lies the Malwa Plateau of Western Madhya Pradesh. It will be seen that while the Western Ghats form one continuous unbroken mountain chain flanking our west coast along Kerala, Karnataka, Goa and Maharashtra, the Satpuda in their north eastern portion have gaps here and there. The most prominent among the gaps is formed by the riverine plain along the Narmada basin. The Vindhyas situated north of the Narmada and south of Bhopal are covered with teak forests that are verdant during the monsoon but totally bare in the dry summer.

South of the Narmada different chains of the Satpudas extend further east through Madhya Pradesh, with some even flanking Madhya Pradesh's border with Maharashtra's Dhule, Jalgaon, Buldhana and Amaravati districts. The north west end of Nagpur district is more or less the east end of the Satpudas which in this area are very low. The highest portion of the Satpudas lies south of the Narmada but north-east of Tapti source. It is in this region of Madhya Pradesh that we have the famous Central Indian hill-station Panchmarhi, which has often been described as a princess (though not queen) of hill-stations. Situated 1,350 m, i.e., nearly 4,400 ft above sea level, Panchmarhi used to be summer capital of the erstwhile Central Provinces before Independence. Though the midsummer temperatures here can easily soar to 35° C, this is simply a paradise compared to the northern Deccan and central Indian lowlands where temperatures cross 45° C. Consequently any number of people from the Madhya Pradesh plains as also from

Maharashtra's Vidarbha and Khandesh regions flock to Panchmarhi during the dry summer.

The Western Ghats flanking our west coast a good 1,800 kms before gradually running into the Satpudas in Maharashtra's Nasik district. Two features of the Western Ghats are strikingly prominent. One is their immense closeness to the coastline. This is particularly true of the Sahyadri Ghats flanking the Konkan coast in Maharashtra, south of Bombay. At several places including Ratnagiri the Sahyadri Ghats are right on the seashore or (as at Ratnagiri) even jutting right into the sea like cliffs. It is indeed a grand and spectacular sight to behold the vast expanse of the rough wild sea from atop a lofty cliff lashed hundreds of feet below by the powerful sea waves. One such breathtaking view can be had especially at sunset from atop the Fort hill at Ratnagiri.

The immense closeness of the Ghats to the Arabian Sea has resulted in the total absence of beaches along vast stretches of our west coast. This is particularly true of the Konkan coast in Maharashtra. And most of the west coast beaches where they do exist are shingly beaches, i.e., with rocky or stony seashores. There are no doubt sandy beaches on the west coast at just the few stretches where the Western Ghats turn somewhat inland running some distance away from the Arabian Sea. There are quite a few examples of sandy beaches in Kerala, Karnataka and Goa, but very few indeed in Maharashtra where the Ghats are often jutting into the sea. This is in sheer contrast to the east coast where the appreciable distance of the Eastern Ghats from the Bay of Bengal has resulted in vast stretches of wide sandy beaches all along. It is found on the west coast that thanks to the nearness of the Western Ghats even the sandy beaches are not as wide as those of the east coast.

The second striking feature of the Western Ghats and to some extent all our block mountain ranges is the existence of any number of sheer drops. The cliffs of the Sahyadris jutting out into the Arabian sea provide a wonderful example in this regard. In our gold mountain ranges, especially in the lofty Himalayas one certainly comes across any

number of extremely steep slopes. Yet at moderate altitudes vertical precipices formed by entire mountain faces are rather rare; hence as a general rule one encounters any number of very steep slopes but not sheer drops. On the other hand our block mountain ranges are replete with sheer drops even at moderate altitudes. The highest block mountains have not even a single peak towering to high altitudes. The highest peak among all our block mountains is Mount Doddabetta Peak near Ooty in the Nilgiris, which rises to nearly 9,000 ft above sea level. Its name itself means high mountain; it is interesting to note that this is a Kannada name though its location is in Tamil Nadu.

The Western Ghats are appreciably higher towards the south than in the north. the northern and central portions of the Western Ghats flanking or even touching the Konkan coast are known as Sahyadris. Anyway different perceptions exist regarding the extent of the Sahyadris, as also the extent of the Eastern Ghats flanking our east coast at an appropriate distance. For instance Bill Aitken is of the view that the Sahyadris include the entire Western Ghats. In his opinion the Nilgiris are not part of the Western Ghats but form the watershed separating the Eastern Ghats from the Western Ghats. However, the observations of many others seem to confirm fairly distinct Deccan, Western and Eastern Ghat formations even in the extreme south peninsula. Their observations of the land contours seem to confirm the view that the convergence of the Western and Eastern Ghats must be indeed quite close to Cape Comorin.¹ In this connection the view from the high ground area of Palayamkottai just 80 kms from Cape Comorin is quite interesting and revealing on a clear day. For the westward and southward view distinctly features the high Western Ghats, whereas the eastward view reveals the low hill of the Eastern Ghats. The southernmost portion of the undulating Deccan Plateau lies in between.

1. Cape Comorin is much more than a mere British equivalent of Kanyakumari. The name Cape Comorin has a geographical and geological significance. As the very term 'Cape' suggests, it is at Cape Comorin that the Indian peninsula juts out into the Indian ocean. The exact Tamil equivalent of Cape Comorin is Kamari Murai which literally means Kumari. On the the other hand, the name Kanyakumari is of historical, cultural and religious significance.

But whichever of the two perceptions we accept, the fact remains that the Western Ghats and Eastern Ghats are nicely interlinked, and together form our most prominent block mountain formations.

The Silent Valley in the Western Ghats of Kerala abounds in a wide variety of flora and fauna, some of which are unique. The Western Ghats around the Kerala-Karnataka-Tamil Nadu trijunction are famous for a vast expanse of elephant country comprising three great sanctuaries. We have the Bandipur sanctuary in Karnataka, the Mudumalai sanctuary in Tamil Nadu and the Periyar sanctuary in Kerala. Other places of interest for nature lovers are the Bondla National Park in Goa and the Karnataka Bird sanctuary in Maharashtra's Raigarh district.

The highest hill-stations in the Western Ghats are Kodaikanal (8,000ft) and Ooty (7,500ft); Ooty no doubt is in the Nilgiris. Coonoor (6,000ft) is close to Ooty. These three places are in Tamil Nadu. In Karnataka's Coorg district we have the beautiful and charming hill-station Mercara, which unlike many hill-stations remains largely unspoilt by man's intrusions. Maharashtra's highest hill-station Mahabaleshwar is situated at 4,460ft. This together with nearby Panchgani provides a wonderful retreat to any nature loving holiday maker. Nearer Bombay and Pune we have lower hill-stations like Matheran, Lonavala and Khandala.

Apart from the hill-stations, the Western Ghats have a number of grand and spectacular waterfalls. In Tamil Nadu we have the Kutralam Falls, a complex of several waterfalls over a wide area in Tirunelveli district. The most forceful of these waterfalls are the Main Falls and the Five Falls. In Karnataka we have the famous Jog Falls, while in Goa the Dudh Sagar Falls are a treat to the beholder.

The sources of most of our Deccan rivers are in the Western Ghats. The Godavari rises in the Western Ghats near Nasik and waters the rocky Deccan tablelands of Maharashtra and Andhra Pradesh before flowing into the Bay of Bengal. The Krishna rises in the Western Ghats of Maharashtra while its main tributary the Tungabhadra rises in the

Western Ghats of Karnataka. Flowing through Maharashtra, Karnataka and Andhra Pradesh, the Krishna too flows into the Bay of Bengal. Likewise the Kaveri rises in the Western Ghats of Karnataka (at Talakaveri on the Brahmagiri Peak in Coorg district) and flows into the Bay of Bengal in Tamil Nadu. The gradual downward slope of the Deccan Plateau towards the east, with the Western Ghats higher than the Eastern Ghats has given rise to this eastward flow of these major rivers across the Deccan. At places where the Western Ghats are some distance away from the coast we have any number of short rivers rising in the Western Ghats and flowing rapidly westwards across the narrow coastal plains into the Arabian Sea.

However, the only major west flowing rivers are the Tapti rising in the Satpudas and the Narmada rising in Madhya Pradesh's Mahakaushal range. Both join the Arabian Sea on the Gujarat coast. The Mahanadi too rises in the Mahakaushal range but flows eastwards through Madhya Pradesh and Orissa to join the Bay of Bengal. The westward flow of the Narmada and the Tapti is facilitated by the Central Indian and Gujarat Plains.

The Western Ghats of Kerala are well known largely for the world famous Periyar sanctuary which is ever much more publicised than the adjoining Bandipur and Mudumalai sanctuaries of the very same sprawling elephant country. The Western Ghats in Tamil Nadu and Maharashtra are well-known for the hill-stations set up by the British. But the less publicised Sahyadris of Karnataka are indeed no less beautiful a retreat to the nature lover or holiday maker.

The Sahyadris of Karnataka are located mostly in Kodagu (Coorg) district as also in Dakshina Kannada (South Canara) and Uttara Kannada (North Canara) districts. Coorg district is picturesque highland on the Western Ghats, full of verdant forests, grassland and a few cultivated valleys. The district headquarter Madikeri (Mercara) is a small, yet beautiful and charming hill-station. Though its altitude is just 3,800 ft it remains cool throughout the year, with winters too being very moderate. This is because of its nearness to the Arabian Sea and

location at low latitudes in the narrow southern part of our peninsula. In Northern Coorg the hills are generally rounded, alternating with smooth grassy slopes interspersed with clumps of forest trees. This can easily compete with the finest park scenery any where in Europe. Eastwards the country slopes towards the Kaveri begins to resemble the Mysore Plateau with scattered solitary hills and deciduous forests. Westwards on the other hand the heavier rainfall and higher humidity sustains evergreen forests. Towards Mercara the hills are closer together, with the deeper and wilder gorges. Towards Virajpet, south of Mercara, the country is open, the woods yielding place to lush green grassy down, with extensive paddy fields in the valleys below. It is about 38 miles from Virajpet that the Nagarahole Game sanctuary is located over a 5 sq. mile area in the south-eastern part of Coorg district.

Altogether Coorg presents a grand panorama of verdant valleys, ravines and fast flowing streams together with the steep hills that are higher towards the west with any number of precipices. The main range of the Western Ghats in Coorg district is 60 miles from Subrahmanya in the north- west to the Brahmagiris in the south. This range which is the backbone of Coorg district's western chain of hills is called the western barrier. The view of this western barrier from the nearest Malabar coast is spectacular and enchanting. At the same time the view from atop Brahmagiri above Talakaveri is a delightful feast to the eye, particularly on a bright November morning. To the north-west and south-east ridge after ridge of grassy or forested hills are visible as far as the eye can reach. This verdant green is so beautifully matched against the clear blue sky. The coastline of South Canara district as well as Kerala's Cannanore are visible on the western horizon. From the South Canara coast Kuluremukhabetta (the mariner's distant landmark) comes into view. In the Nilgiris far to the south-east the highest peak Doddabetta is clearly visible, south-westwards one can behold the Wynad mountains of Kerala, while east-south-eastwards the Bettadapur and Chamundi hill of Mysore greet the eye. Actually the Brahmagiri range itself affords a natural barrier between the Coorg and Wynad hill ranges.

On an average the Mercara tableland maintains a 3,500 ft. altitude. The highest mountain in Coorg district is Tadiandamol (5,724ft.), situated in the range between the Periambadi pass near the Kerala border and the Todikana pass near Talakaveri. The ascent is rather steep and difficult, but the determined climber who reaches atop Tadiandamol is amply rewarded by the splendid scenery all around.

Other fairly high mountains of Coorg include Pushpagiri hill (5,620ft), Kotebetta (over 5,000ft) and Malambi (4,488ft).

The Coorg rivers are neither very wide nor very deep, but their flow is abundant throughout the year. The largest river is the Kaveri, with the Hemavati, the Lakshmanatirtha, the Kakkabe and the Harangi (Suvarnavati) as its principal tributaries. While the Kaveri rises at Talakaveri (literally the Kaveri head) on Brahmagiri, another stream, the Kannike rises nearby and joins the Kaveri at the foot of Brahmagiri near Bhagamandala. A bath in the Kaveri at either Talakaveri or Bhagamandala is considered specially sacred. Dakshina Kannada (South Canara) district is another very picturesque and interesting area in the Sahyadris of Karnataka. Being on the Konkan side of Karnataka facing the Arabian Sea, South Canara (and likewise North Canara too) has the Western Ghats to its east. The eastern boundary of the district is either the watershed or scarp edge of Sahyadris with the peaks' heights varying from 910m to 1830m (roughly 3,000ft to 6,000ft). The general height of the range varies from 610m in the north to 915m in the south (roughly 2,000ft to 3,000ft).

In the northern part of South Canara district the Sahyadri range assumes the form of steep cliffs close to the sea. Southwards as the Sahyadris move away from the sea they have the character of parallel ridges intersected by deep valleys which are the source of most important rivers. Still further south the Western Ghats again approach the sea but in an irregular manner. Throughout South Canara there are some detached low hills, which become fewer and farther towards the sea.

The Sahyadris' windward west side is almost vertical, with any

number of precipices. The most interesting of the South Canara mountains is the Kudremukha group of three peaks on the highest ridge of the Western Ghats facing Belthangady. They are the Mukha Head (6,173ft) with a magnificent 1,000ft precipice, the Midge Point (6,177ft) and the Funk Hill (6,207ft). Other important mountains are Kodachadri (4,400ft), Ballalaraya Durga (4,934ft), Kattegudda (4,534ft), Subrahmanya (5,667ft) and Sisalkal (3,921ft). Ammedikal is an isolated hill rising to 4,261ft.

Most of the South Canara rivers naturally flow westwards into the Arabian Sea. They are short, rapid flowing rivers, ranging in torrents during the monsoon. The principal rivers include the Netravati, the Gurpur, the Gangolli, the Sitanadi and the Swarnanadi. Of these rivers the Netravati joined by its tributary, the Kumaradhara, flows into the Arabian sea at Mangalore.

The two eastward flowing rivers which rise in South Canara are the Tunga and the Bhadra. Actually the Netravati, the Tunga and the Bhadra rise at almost the same place in the Sahyadris. It is just that the Netravati source is slightly west of the Sahyadri watershed, whereas the Tunga and Bhadra sources are slightly east of the watershed. This alone determines the eastward or westward flow of the respective rivers. The Tunga and the Bhadra merge to form the Tungabhadra which is the Krishna's principal tributary.

The Sahyadris of Uttara Kannada (North Canara) district are not as high as in South Canara or Coorg. As in Maharashtra, the North Canara Sahyadris too rise in a series of steps from the coastal lowlands. However, the scarp face is less bold than in Maharashtra's Kolhapur and Ratnagiri districts. The physical features of the Western Ghats in North Canara which is more replete with gaps in the range, makes the rainshadow on the corresponding Deccan side less sharp than in Maharashtra. Consequently Dharwad district of North Karnataka has a higher rainfall than many areas on the Desh (Deccan) side in Maharashtra.

In fact the windward west face of the Sahyadris in North Canara,

unlike the west face of the Maharashtra Sahyadris, does not rise in a single scarp, but is approached by numerous spurs and lower ridges. Of course the Sahyadris here are not much lower than in Maharashtra since the hills on an average rise to 600m (1,950ft) and at some places to 900m (over 2,900ft). The rivers here are west flowing, forcing their way past rugged granite hills towards the Arabian Sea. North Canara's highest hill Darshanigudda (915 m) is near the trijunction of Goa with Karnataka's Belgaum and North Canara districts.

No discussion on the Western Ghats can be complete without highlighting their role as an umbrella which effectively rainshadows the entire Deccan from the south west monsoon of the Arabian Sea. On an average the Western Ghats precipitate 90% of the monsoon rains on the Konkan and Malabar side. Only 10% of the monsoon clouds are tossed over the Western Ghats on to the Deccan side, thanks to the westerly and south westerly winds forcing their way through the ghat valleys.

Indeed the Western Ghats' role as the Deccan's umbrella against the south-west monsoon is known to all. Yet one most interesting feature of the Western Ghats' role during the monsoon seems to be not so well known. The fact is that during the south-west monsoon the Western Ghats sustain a remarkable wind chilling effect across the Deccan Plateau, which is no doubt most prominent on the Western Deccan immediately on the leeward side of the ghats. Yet even hundreds of miles eastwards across the Deccan the wind chilling effect is appreciable. Hence the distinct and unique character of the Deccan monsoon is a kind of a very pleasant chill in the air which is much more than commensurate with the actual rainfall. At places like Bangalore and to a great extent like Pune and Hyderabad too the monsoon features sharp, cool gusts of westerly and south westerly winds, with absolutely no hint of any summer conditions. Even places on the Deccan like Nagpur, Adilabad, Solapur and Bellary which are so dreadfully hot during the dry summer are quite tolerably cool through the monsoon. Over most of the Deccan, even with just scattered rains, the monsoon feels not at

all like part of summer since temperatures are often midway between winter and summer temperatures. This is only because of the nicely chilling effect of the monsoon winds as they pass through the Western Ghat valleys on to the Deccan.¹ This poses a striking contrast to conditions on the Indo-Gangetic Plain where the monsoon is very much a part of summer, it being a mere difference between dry and wet summers. Even in the Lower Gangetic plain and our north-eastern plains where the monsoon rains are so heavy, the monsoon is basically a sultry and sticky season. In fact in the north-eastern region the premonsoon and monsoon feel as if they practically run together into one season with roughly the same temperatures prevailing.

The Eastern Ghats

Last but not least, let us move on to the Eastern Ghats flanking our east coast from Tamil Nadu to Orissa. As already mentioned, the Eastern Ghats are altogether lower than the Western Ghats and generally situated at a considerable distance from the Bay of Bengal. This results in any number of wide sandy beaches along our east coast which over several stretches is lined with elegant casuarina grooves.

Though much lower than the Western Ghats, the Eastern Ghats are considerably longer, being over 2,100 kms in extent. Unlike the Western Ghats, the Eastern Ghats have numerous gaps here and there. However, starting in Orissa, the range is reasonably continuous without too many gaps right through Orissa and Andhra Pradesh and into north Tamil Nadu. Beyond the Javadi hills in north Tamil Nadu one observes a wide gap in the Kaveri Basin area. Thus Tamil Nadu's Thanjavur and Tiruchirapalli districts on the Kaveri basin are flat and almost completely in the plains. Further south another chain of Eastern Ghats runs almost up to Cape Comorin; the hills are mostly very low except in

1. Studies on the south-west monsoon from the Arabian Sea reveal that the monsoon winds undergo a series of acrobatic expansions as they pass through the Western Ghat valleys. It is this which accounts for the wind chilling effect on the Deccan.

Ramanathapuram district.

There are of course two separate chains of the Eastern Ghats that lead away from the east coast right across the Deccan. One chain starts with the Tirupati hills in the east, leading across Chittoor district in the Rayalaseema region of Andhra Pradesh, and further on to the Nandi hills in Karnataka about 50 kms north-east of Bangalore. It is this chain that includes the Eastern Ghats' highest hills. The highest hill in Andhra Pradesh, in fact in the entire Eastern Ghats is Horseley hill (nearly 5,000ft) near Madanapalli in Chittoor district. In Chittoor district itself while the plains are burning hot in summer the Tirupati hills and the hills of Madanapalli provide a welcome retreat from the unbearable summer. Tirupati itself adds any amount of fame to the Eastern Ghats thanks to the Venkateshwara temple, whose exact location is at Tirumala (3,000ft). Tirumala indeed had every potential to be a charming princess of hillstations, surrounded as it is by thickly wooded hills. Of course it has over the centuries grown up as a major temple town and pilgrimage centre. Another chain of the Eastern Ghats leads westwards from the Javadi hills of Tamil Nadu's south Arcot and North Arcot districts across Dharmapuri, Salem and Coimbatore districts towards the Nilgiris. It is perhaps this which leads some observers like Bill Aitken to regard the Nilgiris as the watershed separating the Western and Eastern Ghats. The Bangalore-Mysore plateau of the Deccan lies between these two sections of the Eastern Ghats. Both of these chains of the Eastern Ghat leading westwards across the Deccan have any number of hills above 3,000ft. with some even higher than 4,000ft. Otherwise most of the Eastern Ghats comprise hills well below 3,000ft.

With the Eastern Ghats much lower than the Western Ghats and the Deccan itself generally sloping eastwards, it is naturally impossible to have any river rising in the Eastern Ghats and flowing into the Arabian Sea. However, there are a number of lesser known rivers rising in the Eastern Ghats and flowing into the Bay of Bengal. Better known among such rivers are the Baitarani and the Brahmani in Orissa, the Vamshadhara and the North Pennar in Andhra Pradesh and the Palar

and the South Pennar in Tamil Nadu. In Chennai itself we have the Adyar watering the south end of the city.

The Eastern Ghats in Orissa, rich in natural beauty as well as tribal cultural life, can be such a delight to the adventurous traveller. The Simlipal Tiger Reserve in Mayurbhanj District is a shining example. This national park is all famous as a tiger reserve set up under our Project Tiger and has nearly 100 tigers. Situated amidst vast hill forests, Simlipal boasts of scenic beauty with a rich variety of flora and fauna. The Meghasani peak here is 1,158m (over 3,760ft), while the Barehipani waterfall 399m (nearly 1,300ft) high and the Joranda Falls 150m (1,950ft) high are the other major attractions.

We have already referred to the numerous isolated mountain ranges spread over the heart of the country. Before concluding this chapter it is worth mentioning the Hazaribagh hills on the northern fringe of the Chhota Nagpur plateau. The famous Hazaribagh National Park is situated here.

We have now been around all the mountains of our country. Let us see in the chapters ahead the role of our mountains in shaping our national life.

THE ROLE OF THE MOUNTAINS IN OUR NATIONAL LIFE

From time immemorial our mountains have played a prominent role in shaping the history and destiny of our country. We have already seen how our mountains have secured our northern frontiers from the past, restricting overland foreign invasions to the north-west passes. We have seen the role played by our fold mountains in retaining the distinct identity of our South Asian Subcontinent. We have also seen the role of our fold mountains together with all our block mountains in giving our country such a wide and colourful range of diversities. Thus our unity in diversity can be largely attributed to our mountains. We have also seen the impact of our different mountain ranges on our climate - as both rainshadowing ranges and wind shields against ice-cold winds or desert winds.

The role of our mountains in our national life can broadly be considered under the following categories, viz. tourism, pilgrimage and adventure. Our mountains have over the ages provided an ideal retreat to both pilgrims and nature loving travellers seeking almost relaxing break from the routine humdrum. In ancient times when our people lived in harmony with nature, mountains were indeed regarded as the ideal retreat for spending the last years of one's life. While the Himalayas were no doubt considered ideal for pilgrimage and hermitage, instances of seeking peaceful and serene seclusion amidst other mountains or hills were not uncommon. We have the shining example of the Karla Caves on the leeward side of the Sahyadris in Pune district as well as the Ajanta caves amidst isolated hill ranges of Aurangabad

district, both in Maharashtra. These caves developed over the centuries as abodes of Buddhist monks in pursuit of creative activities in that atmosphere of peaceful and serene seclusion.

The ancient Aryans were themselves great travellers, for otherwise they would never have been able to discover the route to India from northern and central Asia over the Hindu Kush and through the north-west passes, thereby circumventing the great Himalayan barrier. Paradoxically enough, even they were for centuries together unable to hit upon the easy route to the south from the north. It is quite possible that they were initially daunted by the dark mountains of the Vindhyas and Satpudas, the like of which they may never have encountered before. We have already seen how replete our block mountain ranges are with sheer drops, which are so rare among our fold mountains at southward move by the Aryans from Aryavarta to Dakshinapatha (as the Deccan was then known) is obtained in the *Ramayana*. This southward move was facilitated after the Aryans had already moved considerably east down the Gangetic plain to be able to circumvent the Satpudas and the Vindhyas - and by then their racial intermingling with the local non-Aryan population had already begun.

Various references in the *Mahabharata* and later on in the *Puranas* have revealed the concept of sanctity of the Himalayas from ancient times. To this day the concept of sanctity of the Himalayas is very much prevalent, especially with respect to the western and even the central Himalayas. We have the most well-known pilgrimage centres of Badrinath and Kedarnath high up in the Garhwal Himalayas of Uttranchal. Down the course of the Ganga in the corresponding region of the foothills we have Haridwar among the Shivaliks and Rishikesh right at the Himalayan foothills.

In the central Himalayas there is the famous Pashupatinath temple, though it is in Nepal, not India. The eastern Himalayas over the centuries have witnessed no emergence of pilgrimage centres. However, a number of famous Buddhist monasteries have been established, such as the Buddhist monasteries in and around Gangtok in Sikkim as well as those

at Bondila and Tawang in Arunachal Pradesh. It is interesting to note that what is popularly known as Tibetan Buddhism (which is the Buddhism prevalent in the Himalayas today) actually had its origin in Bengal during the reign of the Palas (8th century to 11th century A.D.). Hitherto the two main sects of the Buddhism were the *Hinayana* and the *Mahayana* sects. Of the two it was the *Mahayana* Buddhism that became more widely prevalent. Now the Palas introduced a 3rd sect, viz. *Vajrayana* Buddhism, which developed much affinity to the *Shakti* cult of orthodox Hinduism. Gradually over the centuries *Vajrayana* Buddhism spread to Tibet from Bengal through the Eastern Himalayas; i.e. Sikkim, Bhutan and Arunachal Pradesh. The two famous Chinese Buddhist pilgrims Fa Hien and Huen Tsang (Yuan Cwang) who came to India in the 5th century and the 7th century A.D. respectively, travelled through the Himalayan passes. While Fa Hien followed the usual silk trade route and came via the Kurram pass in the Kashmir sector, Huen Tsang came through the passes of the Kumaon Himalayas.

Based on his travels in the Kumaon and the Garhwal Himalayas in the late 19th century, the British traveller E.S. Oakley in his book *Holy Himalaya* attributes the sanctity attached to the Himalayas to the Indo-Aryans' affectionate memories of the snow clad mountains and lofty uplands that had been their earlier home.¹ Traversing the hot enervating plains after entering India through the north-west passes, the Himalayan snow view must have rekindled the imagination of their ancient ancestral home. The Himalayas in his opinion must have struck them as the grandest embodiment of natural forces, and hence the very abode of the Gods. That explains why from ancient times saints and sages found their way to meditate in the Himalayan serenity.

Moreover, it is just possible that from the upper Gangetic plain, some Aryans might have wandered into Tibet, penetrating the snowy Himalayan barrier through the Garhwal or Kumaon passes. Returning from that rainshadowed region (Tibet) of calm and clear air they might have described to the Aryans back home the paradise of that land with

1. Ibid Chapter VI-P.130 and 131



Our mountains have provided an ideal retreat to pilgrims. Kamakhya temple, Assam (above).

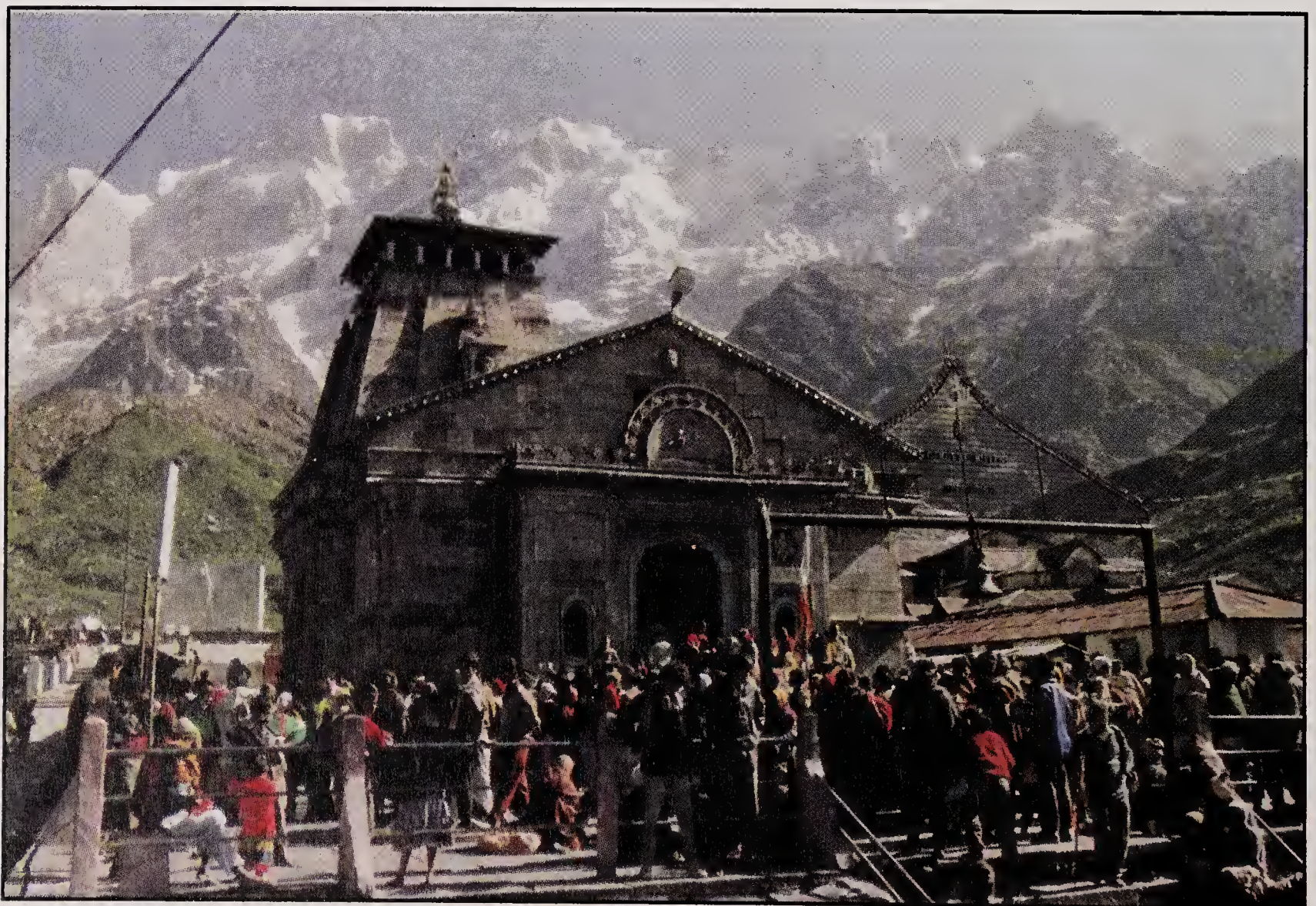
Badrinath temple (below)





Gangotri temple, Uttarakashi (above).

Kedarnath temple (below)





Vast hill forests have scenic beauty with a rich variety of flora and fauna.
Deer in the midst of forest.



Tiger reserve near West Bengal (above)

Rhinoceros in dense forest of Assam (below)

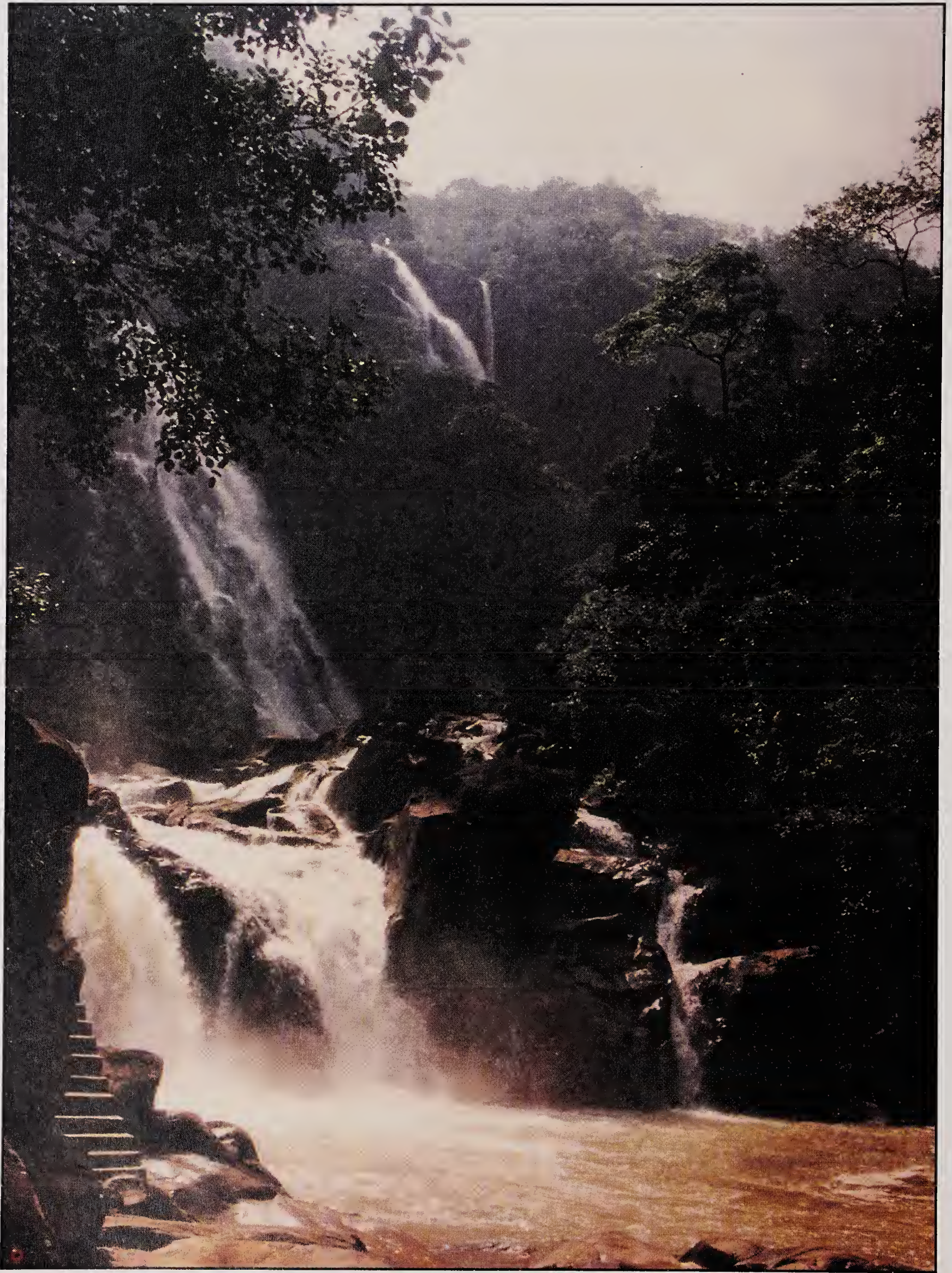




Humans harness water with the help of mountains for different developmental purposes. Baira Siul Project, Himachal Pradesh (above)

A lake in Mukurti Valley, Nilgiri (below)





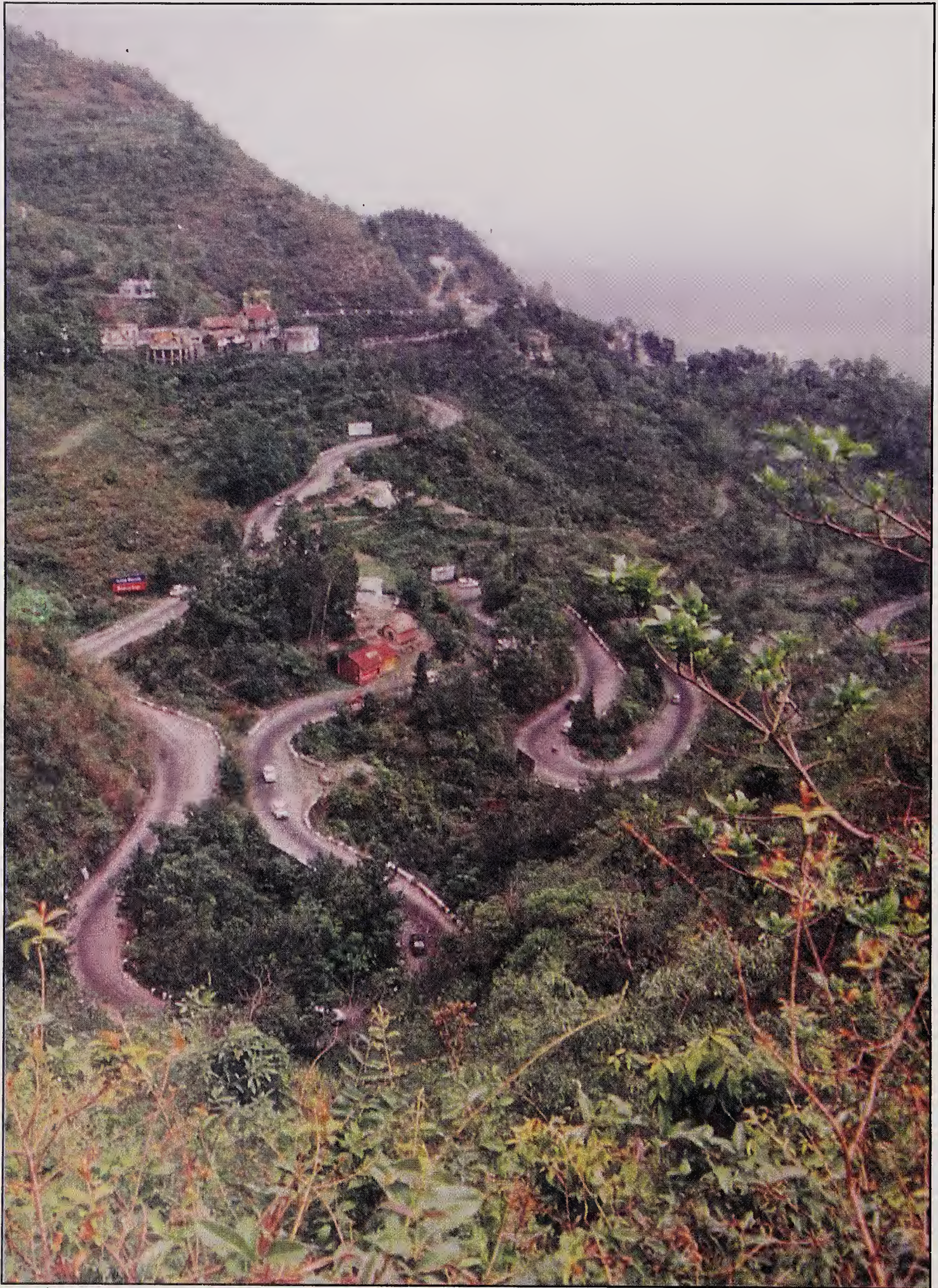
Lodh fall, Netarhar, Jharkhand



People tried to settle in harmony with nature, be it valleys, foot-hills, plateau or mountain top. Nandi hill, Karnataka, presents a grand panorama of valleys, small hills (above)

Coorg presents a quiet, serene town on the hill (below)





Long, winding roads are the life-line of hill-people.

no rain and crisp and cold weather at all times. Such a concept coupled with the longing for a blissful existence must have sustained and nurtured the concept of a paradise beyond the snowy range.

E.S. Oakley describes how the trans Himalayan region beyond the Garhwal - Kumaon Himalayas were regarded by the Indo-Aryans as the hub of the Universe.¹ Brahma is said to have formed seven great continents separated from one another by oceans of brine, cane juice, wine, ghee and curd with fresh water. The central continent Jambudwipa in lotus form was supposed to be the only one familiar to human beings. In the midst of Jambudwipa representing India and the countries to its north in a vast, round glorious mountain Meru forming the centre of the world lotus. South of Meru are three mountain ranges, with the Himavat (Himalayas) adjoining Bharata being the southern most. North of Meru too, three ranges are described, the northern most range flanking Uttara Kurus regarded as a kind of heaven. Four great lakes are described at length in the *Vayu Purana*. They may be the Tibet lakes north of Kumaon, the best known being Manasarovar, or they may even include the great lakes north-east of Kashmir.

We read in the *Mahabharata* how the Mount Meru summit itself was the ultimate goal of the five Pandavas, of whom the virtuous Yudhishtira alone succeeds along with his faithful dog Dharma. However, from the *Mahabharata* it has not been possible to know the exact location of Meru. Though Meru was conceptualised as the highest peak, it was certainly not Mount Everest, but located far to Everest's north-west. It was just that Meru was a prominent (must be highest) peak in that portion of West Tibet, north of the Kumaon Himalayas which was emerging as the focus of the Pancha Pandavas final pilgrimage towards the *Mahabharata's* conclusion. A comparison of current observations of Mount Kailas in Tibet and the nearby Manasaravoeer lake seems to suggest that Mount Meru could be nothing but Mount Kailas. However, there is no conclusive evidence in this regard. The height of Mount Kailash is 22028' a good 7000' less than that of Everest.

1. Ibid Chapter VI - P. 136 and 137

The Himalayas' sacred image is no doubt very largely inspired by their beneficent character as the source of Ganga, the Indus and all their snow-fed tributaries that water the hot, thirsty plains below. It has been found that thanks to the perennial source of the melting snows, the Ganga, the Indus, the Brahmaputra and all their Himalayan tributaries never run dry even at the peak of the dry summer. With water as a prime factor in human life, particularly in a hot country like ours, fanciful legends have grown up about the origin of our rivers, especially the Ganga. The main Ganga sources are in the Himalayan glaciers (the Gangotri glacier in particular), though the largest of its feeders rises beyond the first line of peaks in the high ground towards the more northerly range in Tibet, and burst through the gorges of marvellous depth into the rolling sub-Himalayan region. Garhwal-Kumaon is the gathering region of all the headwaters of the Ganga whether they flow south-east before turning towards Bengal or directly south to join the mainstream.

Ironically enough, over the centuries, our nation drifted from the adventurous and travel loving outlook prevalent in ancient times not merely among the Aryans but other south Asian races as well. For centuries together our people had not clear idea of the authentic sources of the Ganga. It was a Garhwal expedition undertaken by the British Capt. Raper in 1808 that helped establish conclusive data on the Ganga sources. The findings of Capt. Raper's expedition are further corroborated by Colebrook's essay entitled *On the Sources of the Ganges in the Himadri or Emodus*. Reference to both these sources is made in *Asiatic Researches* Vol. XI. This is revealed by E.S. Oakley in his book entitled *Holy Himalaya*.¹

As per these discoveries, the Bhagirathi rising in the Gangotri glacier in the Garhwal Himalays is the main authentic source of the Ganga. Gangotri is at the north end of Uttarkashi District and quite close to Badrinath and Kedarnath. The Bhagirathi together with the Mandakini which rises in the Kedarnath glacier is the principal tributary

1. Ibid Chapter VI - P.141 and 142

of the Alakananda, which rises in the Rakkas Tal, 30 miles north-east of Kedarnath and near the Mana Pass (18,000') leading to Tibet. The confluence of the Bhagirathi (together with the Mandakini into the Alakananda is known as the Ganga.

While the Himalayas to this day have that traditional sanctity about them, our other mountains and hills too are replete with sacred places (though lesser known in most cases). We have no doubt that all famous Venkateshwara temple at Tirumala in the Tirupati hills of the Eastern Ghats, in Chittoor district of Andhra Pradesh in the Maharashtra's Nasik district there is a serene and beautiful cave temple of Trimbakeshwar at the Godavari source (interestingly known as Ganga Dwar). It is here that the very first stream of the Godavari emerges crystal clear out of a hillside rock. A little downstream where more waters have gathered we have the main Trimbakeshwar temple. Atop the Western Ghats in Kerala's Idukki district we have the Ayyappa temple where a pilgrimage takes place every December. Near the Kuttralam Falls in the Western Ghats of Tamil Nadu's Tirunelveli district is the Kashi Vishwanatha temple at Tenkashi-in fact the Tamil name tenkashi itself means Southern Kashi. All these places together with those already mentioned in Chapter II clearly testify to the sanctity attached to our hills and mountains.

The vast cultural diversities within India are largely influenced by the natural geographical divisions created by various mountain ranges. Take the peninsular region for instance. Within this large region covering the southern half of the country we have three major natural divisions formed by the Western Ghats together with the Eastern Ghats. They include the Deccan sandwiched between the Western and Eastern Ghats, the narrow west coast plain (on the Malabar and Konkan coast) and the wide east coast plain (on the Coramandal coast from Tamil Nadu to Orissa). Language and cultural traits differ between the coastal and the Deccan side of the respective ghats. For instance we gather from the pages of history that in ancient times there were three principal traditional Tamil kingdoms of the Cholas based at Thanjavur, the Pandyas based at Madurai and the Cheras based in Kerala. For centuries together

Tamil was the language of Kerala too, with Malayalam existing as a major dialect of Tamil. The 4th century to 7th century A.D. witnessed the rise of another Tamil empire of the Pallavas based at Kanchipuram. Over this period the contact with the other side of the Western Ghats (Kerala) became appreciably reduced with the seat of Tamil Power right at north-east of the Tamil country. The rise of the Thanjavur based Chola Empire from the 8th century A.D. saw a great revival of maritime contacts with Kerala, but once again such contacts were much reduced with the rise of the Vijayanagara Empire in the 14th century.

Now during all such periods of reduced maritime contacts between the east and west coast in the south peninsular region, the natural barrier afforded by the Western Ghats naturally proved conducive to the emergence of Malayalam as a language distinct from Tamil. The seeds of Malayalam's emergence as a distinct language which were sown during the Pallava period now bore fruit in the days of the Vijayanagara Empire. Malayalam has grown since then into a full fledged literary language with its own script distinct from the Tamil script.

The Konkan coast too on the windward side of the Sahyadris has some linguistic and cultural characteristics distinct from those on the Desh (Deccan) side. Konkani is the language of Goa as well as its neighbouring coastal districts of Maharashtra and Karnataka. Though no doubt Konkani has marked affinity with Marathi, it is nevertheless a distinct language in itself with its own literature. The local language of South Canara and the south end of North Canara district is Tulu, which again is written in Kannada script and has marked affinity with Kannada while yet being a distinct language in itself with its own literature. Ratnagiri and northwards in Maharashtra, no doubt Marathi is the local language on the Konkan side too. But this Marathi dialect (often called Koi Marathi as it too is spoken by the Konkan fishermen known as Kolis) is distinct from the Marathi spoken on the Desh (Deccan) side in say, Pune, Satara or Kolhapur districts. Marked Portuguese influence is only one of the components of Goa's distinct cultural identity. Yet a major component of Goa's distinct cultural identity is that resulting

from the natural barrier of the Western Ghats which has facilitated the distinct evolution of the *Konkanastha* and *Deshastha* characteristics in general. All along from Mangalore to Bombay on the Konkan coast and from Mysore to Nasik on the Deccan, one can clearly observe the distinct character of the Konkan and Desh sides of the Sahyadris.

To an appreciable extent the Eastern Ghats too facilitate a cultural division consequent to the natural division between the east coast and the Deccan. This division is fairly prominent in the Orissa and Andhra Pradesh portions where the Eastern ghats run in a more or less continuous chain. For instance, coastal Andhra Pradesh has linguistic and cultural characteristic somewhat different from Telangana and even Rayalaseema on the Deccan, even though Telugu is the regional language in all the three regions. Borra Cave near Visakhapatnam present stalactite and stalagmite formations. Much the same is the case in Orissa with Katak (coastal) characteristic distinct from the Sambalpuri (Deccan) character.

It will be seen that throughout our peninsular region the major paddy growing areas are in the coastal plains (with exceptions no doubt being the low lying regions of Chattisgarh and East Vidarbha on the Deccan). Diet habits in the coastal belt are naturally rice dominated, whereas over most of the Deccan it is often millet or bajra that has to serve as the staple food.

The remote hilly areas in turn are often inhabited by tribal populations with their own way of life and distinct cultural traits. Thus apart from sustaining cultural divisions the hill ranges or mountain ranges in themselves add to the wide cultural diversities that pervade our vast country. In this regard, the hills and mountains of north-east India are a wonderful example of distinct racial and cultural zones in our country. Of course, needless to say there is hardly any racial purity in India which, right from ancient times has witnessed remarkable intermingling of races. Aryan, Dravidian, Mongoloid and Polynesian characteristics are all present in varying degrees throughout the country.

north-East India, particularly along the Indo-Tibet and Indo-Burma borders the mongoloid character dominates not only racially but also culturally. The tribal languages of the north-eastern hills are all of a mongoloid source with some remote Sino-Tibetan or Burmese connection. Assamese on the other hand spoken in the Brahmaputra basin is a Sanskrit derived Indo-Aryan language, though no doubt with Burmese influences imbibed during the Ahom rule.

The Eastern Himalayan belt from Sikkim and the north Bengal mountains in the west to Arunachal Pradesh in the east is culturally distinct with languages like Rongpa (Lepcha), Bhutia and all the Arunachal Pradesh dialects, being some mongoloid source. Much the same is the case with the Ladakhi dialect of Jammu and Kashmir. But even the central Himalayan belt in Nepal and western Himalayan belt from Kumaon to Kashmir has its own distinct character. John Keay in his book entitled *Into India* makes some very interesting observations of the distinct character of the Himalayan people. His focus no doubt, is largely on Kashmir. In his opinion the Kashmiri, irrespective of religion, has a certain character and identity which is distinct from that of the Indian elsewhere. It is perhaps the first line of Himalayas, viz., the Pir Panjal range which separates Jammu from the Kashmir valley, which gives rise to the distinct identity of the rest of Jammu and Kashmir including Ladakh and the Kashmir valley, Ladakh of course, on the Tibet border reflects considerable mongoloid racial characteristics. Ladakhi itself bears great affinity to the Sino-Tibetan group of languages. Kashmiri no doubt belongs to the Indo-Aryan group of languages. Yet the natural divisions created by the Pir Panjal range does have its effect in giving even Kashmir Valley, a distinct stamp. According to John Keay's observations India to the Kashmiri mind (irrespective of religion) seems to exist Jammu southwards. He also makes a passing reference to the distinct character and identity of Himalayan people in general and their feeling of being somewhat different from the plainsmen below.

It is obvious that owing to geographical factors the very life style

in hilly area is different from that of the plains. Therefore there is nothing surprising about people high up on the mountains or else in the valleys separated from the plains by mountain ranges, feeling different from the plains people. In the Himalayas, the people's character and life style can vary considerably from the first line of Himalayas to the inner lines and finally on to the Tibet Border. Yet this does not in any way mean a desire for political separation, which in any case can never prove viable politically or economically. For that matter the *Pahari* anywhere with his own life style, is bound to feel that bit different from the *Maidani*-and indeed India in the ultimate analysis typifies unity in diversity.

To give legitimate expression to this unity in diversity it has been felt appropriate by various sections of the people to constitute different hilly regions into distinct states of our country. It is with this intention that states like Mizoram, Nagaland, Meghalaya, Arunachal Pradesh, Himachal Pradesh, Uttaranchal (Gahrwal and Kumaon) and Jharkhand (Chhota Nagpur plateau and adjoining hills) have been created. There is also an autonomous hill council for West Bengal's Darjeeling district.

Our hilly and mountainous regions have vast potential for tourism development. Of course, the maintenance of environment and the ecological balance is a vital factor that needs to be taken into consideration. Tourism development in our mountains had its beginnings during the British rule with the establishment of any number of hill-stations between 5,000 ft. and 8000 ft. The British found in these hill-stations an ideal retreat from the torrid summer heat. Many of the hill-stations were set up as summer capitals, with Shimla as the all India summer capital. The growth of hill-stations in various regions of our vast country (mostly in provinces of British India more than the princely states), attracted more and more Indians in due course to enjoy cool summer holidays in clean, green and serene surroundings. With the advent of Independence, our own central and state governments took keen interest in developing the existing hill-stations and even setting up new ones particularly in some of the erstwhile princely states.

Notable in this regard is hill-stations of Srinagar, Gulmarg and Pahalgam which is the starting point for the Amarnath yatra. Among other hill-stations developed after Independence are Manali and Dharmashala in Himachal Pradesh, Uttarkashi in Garhwal region, Gangtok in Sikkim (since accession to India in April '75), Bomdila in Arunachal Pradesh and Madikeri (Mercara) and Shimoga in Karnataka. Manali and Uttarkashi have come into prominence together with Darjeeling as major centres for the promotion of mountaineering. We have the Western Himalayan Mountaineering Institute (WHAI) at Manali and Nehru Institute of Mountaineering (NIM) at Uttarkashi. The earliest of the three institutes is the Himalayan Mountaineering Institute (HMI) established in Darjeeling in 1954.

The rapid growth of tourism resulting from the development of hill-stations has been bringing the government a lot of revenue especially through foreign exchange. Unfortunately in recent years, the adverse impact of tourism on environment has become increasingly obvious. Many of our erstwhile coveted hill-stations like Shimla, Mussoorie, Nainital, Darjeeling, Ooty and Kodaikanal have ceased to be the natural paradise they used to be. Man's encroachment on nature seems to know no bounds. Indiscriminate deforestation and the mushrooming of any number of ugly high rise buildings by way of hotels and other commercial centres have totally disfigured our hill-stations and their surrounding hillsides. It is indeed time our conscience revolted against this murder of our environment and we all got together to reverse this ugly trend.

It is appropriate to mention here with a touch of regret that despite the immense value attached to nature by all our ancient scriptures and literature, our outlook today is a far cry from the spirit of our ancient culture. Paradoxically indeed despite the cut-throat industrial revolution in full swing in Britain in the 19th century, the British while developing our hill-stations, took the greatest care to preserve nature in all its pristine purity. Even the buildings they constructed in the hillstations were well spaced out and made well matched against the natural surroundings. In an age when our own countrymen had drifted into

apathy, the British took great interest in studying our flora and fauna. Towards the preservation of wildlife, pioneers like Jim Corbett strived towards the creation of wildlife sanctuaries. Since independence no doubt India has undertaken many projects towards the preservation of our valuable wildlife. Yet a major stumbling block is the indifference of our own citizens who are ready to do anything for commercial gains even if it means total disruption of our ecological balance.

The development of our Himalayan hill-stations has been assuming an added dimension with the promotion of winter sports activities. The more adventurous holidaymakers can have a wonderful time at the higher hill-stations in winter. Our winter sports resorts are all located above 8,000 ft. to ensure sufficient accumulations of winter snow for the skiing. In the Western Himalayas where higher latitudes and great distance from the sea facilitate colder winters, altitudes between 8,000 ft. and 9,000 ft. are sufficient to sustain major ski resorts. We thus have the winter sports resorts of Gulmarg in Kashmir, Kufri near Shimla, and Auli in Garhwal (near Joshimath) all situated at altitudes from 8,000' to 9,000'. However, in the Eastern Himalayas, appreciably higher altitudes are required to sustain winter sports, owing to the lower latitudes. We thus find that the north Bengal winter sports resort Shangrila is at 11000 ft. altitude. And even to this day Shangrila are not as popular as Gulmarg and Kufri, which enjoy national and even a good measure of international popularity.

The HMI at Darjeeling, NIM at Uttarkashi and WHMI at Manali are all playing an active role in promoting mountain adventure. Apart from basic and advanced mountaineering courses, they conduct various adventure courses. The Indian Mountaineering Foundation (IMF) at Delhi has organised mountaineering and trekking expeditions over the years.

While studying the role of our mountains, especially the Himalayas, in promoting adventure, it will be interesting to take a look at the altitudes of some of the major peaks. With Nanda Devi 25,689 ft., having been India's highest peak prior to Sikkim's accession to India, a

survey of the entire Nanda Devi basin will be very fascinating. Nanda Devi East towers to 7,434 m. (23,390 ft.), while Trishul I stands at 7,120 m. (23,360 ft.), Trishul II at 6,690 m. (nearly 21,940 ft.), and Trishul III at 6,008 m. (19,526 ft.). Another towering peak in that area is Nanda Khot 6,861 m. (nearly 22,508 ft.). Nanda Devi and Nanda Devi East together with the three Trishuls present a glorious and spectacular view to the beholder, the most famous view points being from Snow View and China Peak (Naina Peak), both above Naini Tal. China Peak, the highest mountain around Naini Tal stands at 8,569ft. To preserve the ecosystem afforded by the Nanda Devi Sanctuary, all attempts on Nanda Devi and its neighbouring peaks must be made from routes outside this sanctuary. The wonderful biosphere reserve nurtured by the Nanda Devi sanctuary in the high mountain ranges of the Rishi Ganga Valley, is currently under faunistic study by the Zoological Survey of India (ZSI). With the approach routes snowbound most of the year and a very difficult terrain, this is India's most natural and ecologically undisturbed biosphere reserve.

The Gangotri glacier area is in turn a very interesting area with a number of peaks. The Gangotri glacier itself is at 7,000m. (22,966ft.). The Kedarnath peak is 6,968m (22860 ft.), while the Kedarnath Dome is 6830m (22430 ft.). Among other very high peaks in the area standing over 20,000 ft. are Vasuki Parbat, Kharcha Kund and Shivling. The three Gangotri peaks themselves rise to well over 20,000 ft., with the highest Gangotri I standing at 6,672m. (21,948 ft.).

The Himachal Himalayas have quite a few peaks over 20,000 ft., but they are closed to expeditions and treks for ecological reasons. The highest peaks are Gyah at 6,794m., Leo Pargil at 6,792m., Shingri Parbat at 6,645m., Parbati at 6,632m., Mani Rang at 6,593m, Kulu Pumori at 6,553m, Kinnaur Kailash at 6,473m, Phawarang at 6,349, Guan Nelda at I 6,304m and Central Peak 6,285m. Of all these peaks Kinnaur Kailash also known as Kinneri Kailash close to the Indo-Tibet border in Kinnaur district, has a traditional sanctity for Buddhists as well as orthodox Hindus. Circumambulation of Kinneri Kailash is a

common practice amongst the Buddhists and orthodox Hindus; the only difference being that while the circumambulation by orthodox Hindus is clockwise, that by the Buddhists is anticlockwise.

A number of peaks well below 20,000ft. in the Himachal Himalayas are open to treks and expeditions. But it is in the Kashmir Himalayas, particularly in the Karakorams that there is the maximum scope for trekking and mountaineering expeditions to well over 20,000 ft. The Karakorams are replete with any number of such peaks, the highest being Singhi Kangri 7,751m (25,191 ft.). Among other peaks are Saser Kangri I 7,672m (23,934 ft.), Saser Kangri II 7,265m, Teram Kangri I 7,464m, Saser Kangri III 7,495m, and Mamostong Kangri 7,516m. Elsewhere in the Kashmir Himalayas, we have the peaks Nun and Kun towering to 7,135m and 7,077 m in the Zaskar area, KangYisay 6,400m, in the Ladakh area and Sickle Moon 6,574m in the Kishtwar area. All these peaks rising well over 20,000 ft. provide ample scope for mountaineering adventure.

Coming to the Eastern Himalayas, apart from India's highest peak Kanchenjunga (28,208') we have any number of peaks towering to well over 20,000'. From Sandakphu in north Bengal, we get a splendid view of so many such peaks both northwestwards and northeastwards. The northwestward view is no doubt across Western Sikkim into Nepal, thus giving a glimpse of the east-central Himalayas. The north eastward view across Sikkim into Bhutan is that of the eastern Himalayas. Looking north west wards we get a majestic view of the following peaks (from east to west), viz. Chomolongo 7,815m, Makalu 8481m, Everest 8,848m, South Col 7,986 m, Lhotse 8571 m, Nuptse 7879 m, Baruntse 7,220 m and Chamlong 7,317 m. North eastwards we get a spectacular view (from west to east) of the following peaks, viz. Kumbhakarna (Jano) 7,710m, Kang Peak 5,560m, Koptang 6,147 m, Ratong 6,679 m, Kabru 7,338 m, Kanchenjunga 8585m, Dome Peak 6,600 m, Zemu Gap (valley), Simvo 6,811 m and Pandim 6,691 m. The eastern Himalayas too with any number of towering peaks afford ample scope for mountaineering and trekking adventure. Beyond Bhutan into

Arunachal Pradesh the Himalayas gradually lower themselves and there are indeed few peaks that touch 20,000 ft.

We have already seen how conclusive information on the exact location of the Ganga Sources was established by Capt. Raper's Garhwal Expedition in 1808 and corroborated by Colebroke's essay entitled *On the Sources of the Ganges in the Himadri or Emodus*. However, what is most amazing is the prevalence of popular misconceptions in the past to the effect that the Manasarovar could be the ultimate source of the Ganga and the Satlaj. It was a reconnoitre by William Moorcroft and his team which exploded this misconception. In his book *A Journey to Lake Mansarovar*.¹ William Moorcroft describes his arduous treks along the northern, western and southern shores of Mansarovar along with his team. His (and his team's) observations clearly revealed no river to originate from the north, west or south side of Mansarovar Lake. Describing the rigid adherence of some people to this preconception, he points out how finally they were proved wrong, unable to locate any river emerging from this lake to the north, west or south. The reconnoitre proved that these are numerous water courses leading into this lake from the south, west and north, the largest being the Krishna sweeping down from the Himalayas to the south-west. Topographically analysed, the Manasarovar Lake is flanked by the Himalayas to the near south and south-west as well as the distant west and north west. To its immediate west and north is a high plateau formation. This renders impossible the emergence of any river from this lake in these directions. Only eastwards there is a gradual downward slope that facilitates the emergence of the Tsang Po (Brahmaputra in Assam) from this lake.

The Kumaon and Garhwal travels of E.S. Oakley in the late 19th century helped unravel the mysteries of nature in the Himalayas. His very discription (in his book *Holy Himalaya*) of the approach to the Himalayas from the plains and the gradually changing scenery moving right into the mountains arouses the readers' keen interest. Revealing the delight of trekking through the hills and mountains, E.S. Oakley

1. Ibid Chapter VI -P .80 and 84

writes,¹"The journey to Almora is most pleasant with deliciously cool breeze on the slopes and heights and as one rises higher and higher a feeling of exhilaration possesses the mind, the lungs are filled with pure sweet air and a sense of liberation is felt after the dead level of the Indian plains. Below us, as we ascend the zigzag road, are deep gorges filled with subtropical growth, and above us are high fir-clad peaks, while if we turn and look backwards we see the great hazy plain below stretching as far as the eye can reach, its greenery intercepted by the white lines of one or two wide river channels". With this vivid description he goes on to add that the Kumaonis have a proverb that those who have once lived in the Kumaon are never happy elsewhere. His progressive description of the gradually changing and widely varying scenery that keeps unfolding itself above and below, is very absorbing. He further throws light on the origin of the Garhwal and Kumaon lakes, adding that the unique charm of the Kumaon landscape and scenery lies in the several lakes whose shining waters of lovely turquoise blue glance up from the depths of their glens in Naini Tal's neighbourhood.² According to him the Garhwal and Kumaon lakes were probably formed by terrible landslides in the 19th century when an entire mountain side at Gohna in Garhwal fell down once night to the terror of the inhabitants of a nearby village, locking up a valley and a stream. A large lake several miles in extent, was thus formed in a few days. And several landslides in the entire region, thanks to torrential rains must have led to the formation of so many lakes.

Describing the eastward and northeastward trek beyond Almora, deep into the Himalayas towards the Indo-Tibet border, E.S. Oakley gives such vivid descriptions of the rich variety of flora and fauna up the Sarju valley and finally going on towards the Pindari glacier which is the source of the Pindar. According to him the Pindari glacier is seen in its true proportions on reaching a 12,000 ft. altitude. It is about 3 miles long, half a mile wide and consists of two parts meeting more than half way up its course. Actually the glacier descends in steep,

1. Ibid Chapter I - P. 24

2. Ibid Chapter I - P. 28

irregular steps or terraces, spreading out lower down in a broader, yet fairly steep expanse of ice, with the ridges on either side being well defined.

Traversing the Pindari glacier is a most formidable task as aptly described by E.S. Oakley.¹ The hard slippery ice interspersed with stones and rock, impassable crevasses and ugly holes, renders any proper foothold impossible without constant expert use of the ice axe. And descent is very much harder than ascent.

A path from the head of the Pindar valley leads eastwards to the Milam valley through a difficult pass at 20,000 ft. altitude. Milam valley extended towards North-western parts of Pithoragarh district in a length of about 20 kms. In the 19th century a Kumaon Commissioner Traill was the first person to accomplish this daring and arduous trek. This again is a concrete instance of the pioneering role of the British in reviving the spirit of adventure in India. The lure of nature and solitude set him out on such a trek, camping months together at Phurkia, climbing and photographing, living only on *chapatis* made by a rugged hillman. Thereafter Boeckh, the famous German Alpine mountaineer, accomplished this trek in 1893.

Yet another interesting but easier route to Milam lies near the Untadhura Pass into Tibet, though the scenery on this route is no patch on the scenery on the Pindari route. Yet one glorious view of this route is that of the Nanda Devi (25,689 ft.) at a few miles distance up a side valley. It is indeed unforgettable, with the whole stupendous mass of the mountain rising before the eye, every single black rock jutting out of its snows clearly outlined, with the vast peak towering into mid-heaven. Yet there are otherwise few very good glimpses of the higher snows as the valley lies too low to afford a view of the summits. The Goriganga source, viz., the Milam glacier, is much larger than the Pindari glacier, though not as interesting to the explorer. The glacial action upon the rocks grinds up limestone particles that give the Goriganga its white colour.

1. Ibid Chapter IV - P. 70 to 81

The road to the pass into Tibet turns off to the right a little before reaching the village. Milam itself is 11,000 ft. above sea level and the road into Tibet has twice cross passes over 17,000 ft. A few miles from Milam on this road, beautiful specimens of ammonites and other fossils were found embedded in the fine block shale by Col. I.A. Waddell in the 19th century. This discovery goes to prove this lofty terrain was once the bed of a great sea (Tithes Sea) before the great upheaval of the Himalayas.

Though Badrinath and Kedarnath have been sacred places and major pilgrimage centres from Adi Shankaracharya's time in the 8th century A.D., it is interesting to note the number of breathtaking moderate and high altitude trek routes discovered by the British since the late 19th century. In fact it is the pioneering work of adventurous British travellers that has aroused our own countrymen's interest in the Kedarnath Peak (22,853 ft.) and Badrinath Peak (22,901 ft.), which are a grand spectacle just 10 miles apart from each other. In his book *Holy Himalaya*, E.S. Oakley describes how from a few miles down the Mandakini valley these two sharp peaks seem to pierce the very skies, the white battlements with their enormous slopes of smooth and glistening snow towering majestically into the air. Referring to the overpowering floral fragrance near the eternal snowline, he also writes of the enchantingly strange sounds of (perhaps) distant avalanches heard prominently in the rarefied atmosphere and traditionally attributed to the voices of gods assembled for sport or council. He goes on to highlight the joys of trekking to Badrinath or Kedarnath from Kumaon, off the beaten track of Hardwar, Rishikesh and up the Alaknanda. On this route from Kumaon via Dwarahat and Karnaprayag, one sometimes traverses passes of great height, sometimes dark gorges with occasional views of the silvery peaks bright against deep blue skies. The richest vegetation is from 6000 ft. to 10,000 ft.. In autumn the ground is often covered with flowering plants-white anemone, columbine and a delicious kind of strawberry. In ancient times *jhulas* (rope-bridges) were the only means of crossing rivers on this route.

In Garhwal this road advances along the Mandakini through wild and precipitous terrain.¹ Where the Mandakini turns south a few miles from the source, the Basuki flows into it in magnificent falls, 150 ft. deep whose roar is deafening. The path becomes narrower and stiffer till it comprises only steps in the rocks. Though the rocky mountain slopes are bare, the mountain tops are covered with rhododendrons, oaks and pines. Near the Gourikund temple a little ahead there are hot springs - such a marvellous coexistence with ice cold river beside the hot springs whose water temperature may be over 52° C. From here the steep and narrow road winds another 5,000 ft. upwards to Kedarnath. The roar of the invisible Mandakini far below is enchanting. The splendid forest scenery yields place to stunted bushes higher up. One gets a spectacular glimpse of a waterfall descending in several cascades, over a precipice hundreds of feet deep. Beyond Bhimudiar which was earlier the pilgrims' last resting place, the valley rises more steeply towards the snowline. Even here the slopes are beautifully covered with dwarf rhododendrons, iris and anemone. Suddenly one enters the Kedarnath vale encircled by craggy mountains. The valley itself is over 11,000 ft. The lofty Kedarnath peak is to the north-east, while northwards we get a glimpse of darkened snow and rubble. The Mandakini source is 100 ft. above while Kedarnath temple itself at the bottom of the valley is surrounded by beautiful violet auriculas. The snow showers often seen blowing from the peak above are traditionally regarded as wreaths of smoke from sacrificial fires. Ultimately man's creative genius and poetic inspiration knows no bounds.

Among the greatest stalwarrrts in the revival of the spirit of mountain adventure in India was Sir Francis Edward Younghusband who undertook numerous Himalayan expeditions through the late 19th century and the early 20th century. His expeditions were no doubt not restricted to the Himalayas; they covered indeed the heart of Asia as he had traversed thousands of miles across China, Central Asia and the roof of the world-Tibet in the course of various hazardous travels.

1. Ibid Chapter VII - pages 149 to 151 in E.S. Oakley's *Holy Himalaya*



Water received on hills and mountains gives a grand panorama of verdant valleys, ravines and fast flowing falls, Cauvery river (above)

Karnataka's beautiful and charming hill district of Coorg is home of coffee plantations (below)





The terrain in Darjeeling is mostly smooth with rolling meadows. The high amount of rain facilitates growing tea. (above)

Valley of flowers in the Himalayan region (below)





The fascinating narrow gauge 'Toy Train' still operates on age-old steam engines and loops, Darjeeling



The highest hill-station in the western ghats is in the Nilgiris



Hill areas are often inhabited by tribal populations with their distinct cultural traits. Members of Mizo tribes perform bamboo dance on festive occasion. Mizoram (above)

People in colourful attire





Life at very high altitude is difficult



Adventurists holiday makers enjoying skiing at high hill-station of Auli which accumulate sufficient snow (above) The Shivalik range of the Himalayas have extended hundreds of miles. Mountaineers stay in camps (below).





Climbers face stiff challenges because of treacherously steep recipices and highly uncertain weather conditions (above). The much coveted and admired elephant is found in all over India in thick luxuriant forests. The most prominent elephant terrain is found in verdant evergreen tropical rain forest flanking the foot-hills of mountain ranges (below).



Francis Younghusband's travels took him even to the distant south Africa, but his greatest attachment was to Asia, where indeed the Himalayas had for him a very special attraction. He was a very keen observer with an insatiable quest for knowledge and the special significance of his expeditions lies in the immense wealth of knowledge he acquired with respect to not only geography but also religion, culture and way of life of different people. As clearly revealed by George Seaver in his biography entitled *Francis Younghusband*, his numerous expeditions widened his outlook and enabled him appreciate the ethics and essential philosophy of all religions and best values of all cultures. His trans-Himalayan expeditions into Tibet in 1903 and 1904 gave him a clear insight into the striking contrast between the true spirit and essential values of Buddhism on the one hand and the utterly high handed and demoralised outlook of the Tibetan Lamas of the period on the other hand.¹ Francis Younghusband very frankly recalls the instructive role of all his Himalayan and other Asian travels in transforming him from a bigoted Christian (and that too a bigoted Anglican) into a person with a totally receptive and all embracing attitude towards religion². George Seaver in his biography of Francis Younghusband describes how this transformation led him in later years to work consistently towards the convening of the World Congress of Faiths at London in July 1936.

To recall in a nutshell all his Asian expeditions, Francis Younghusband's very first expedition was across Himachal Pradesh in 1884 within a couple of years of his being commissioned into the British Indian Army. His subsequent expeditions saw him repeatedly traversing the most difficult Kashmir passes across the Karakorams or the Pamirs.

The seven months from April 1887 to November 1887 brought out the very best of Francis Younghusband's highly adventurous spirit and indefatigable endurance. Starting from China in April 1887 he trekked thousands of miles across the terrible Gobi desert in the scorching midsummer heat upto August 1887. And then just towards

1. Ibid Chapter XVI and XVII, pages 224 to 250,

2. Ibid Chapter XXIV, pages 336 and 337

the onset of autumn it was time for him to enter the high altitudes of the Karakoram range to explore a totally unknown passage to India. August and September 1887 saw him on the most arduous exploratory trek across the Mustagh pass into Kashmir, before reaching Srinagar in October to finally join duty at Rawalpindi in November 1887¹.

From the adventure to adventure; Francis Younghusband established yet another record in 1889 with an arduous trek over the Karakorams, crossing 17 Kashmir passes en route to the Pamirs and Hunza. His marathon trans Sikkim expeditions to Tibet kept him on the move through 1903 and 1904. His trek through Sikkim inspired him to write a book *The Heart of Nature* which gives a detailed and vivid description of the flora and fauna of the Teesta valley and the Sikkim forests. His earlier book *Wonders of the Himalaya* was based on his first Himalayan trek (through Himachal Pradesh) in 1884.

With the successful accomplishment of this Tibet expedition, Francis Younghusband now took the initiative in promoting Himalayan mountaineering activities. Thanks to his pioneering efforts in inspiring and promoting mountaineering activities, including all the maiden attempts on the Everest, he was known as the father of Everest Expeditions, though his own expeditions involved only treks across the highest passes with no attempt on the highest peaks. It is a well known fact that the first recorded evidence of the successful scaling of Everest was by Edmund Hillary and Tensing Norgay in May 1953, by which time Francis Younghusband was no more. But this successful expedition had been preceded by many unsuccessful expeditions including the controversial expedition nearly 20 years earlier in which Mallory and Irvine had perhaps successfully scaled the Everest, though never to return. Many such Everest expeditions of the 1920s and '30s had been inspired and actively aided by Francis Younghusband thus earning him the name 'Father of Everest Expeditions'.²

Glancing through the pages of history we gather how the impact

1. Ibid Chapter IV, P.30 to 34

2. Ibid Chapter xxii, P 302 to 318

of British rule and occidental education in India gave rise to the Great Indian Renaissance of the 19th century. This renaissance surely had its keen impact in the field of mountain adventure too, with examples of Francis Younghusband and earlier adventurous British travellers inspiring the spirit of adventure in our own countrymen. Even before Francis Younghusband we had pioneers in the most famous Indian explorers of the 19th century viz., Nain Singh and Kishan Singh-Nain Singh's marathon pan-Himalayan and trans-Tibet trek from 1865 to 1867 took him from Ladakh to Lhasa via Chang Thong, while Kishen Singh's trans-Asian Marathon trek took him across the Eastern Himalayas and Tibet to outer Mongolia and back from 1878 to 1882. Popularly known as Pandit brothers, Nain Singh and Kishen Singh were also pioneer Indian mountaineers who conquered 37 peaks of an altitude over 20,000 ft. with five of them being over 21,000 ft.. This was indeed a marvellous feat in view of the very poor and heavy survey and mountaineering equipment, despite which they remained in the field for years together at a stretch. Though Tensing Norgay was an Indian, the first successful Everest expedition was not organised by India. Yet India did not lag behind, and 1960 witnessed the first attempt by an all Indian expedition to reach the "top of the world" with mostly Indian-made equipment. Led by Brig.(then Col.) Gyan Singh, the party comprised 23 members and 55 Sherpas. The summit camp was set up at 8,412 m. (27,339 ft.). At 3 A.M. on 25.5.60 Sonam Gyatso, Nawang Gombu and Narinder Kumar got out of their sleeping bags and were on their final assault on the summit some hours later. However strong winds and powder snow made visibility poor and the going tough. It took them several hours to reach the foot of south summit at 8,754m. (28,450 ft.). Further progress became very slow and extremely hazardous and they reluctantly retreated when less than 215m away from their goal. An unusually early monsoon soon struck Everest with all its fury, nearly entrapping the second summit party comprising M.S. Kohli, C.P. Vohra and Ang Temba. The expedition was therefore forced to withdraw, hoping for another date with the mountain.

It may be mentioned here that for the Everest, Kanchenjunga or any peak in the Eastern or Central Himalayas and even most of the Western Himalayas, the climbing season is very short and restricted to the intermediate periods between the long winter and the monsoon. From late October to late March it is most appallingly cold. Only in October, April and May is there any kind of respite between the terrible westerly blizzards of winter and the treacherously heavy snowfall of the monsoon. Only in the extreme Western Himalayas where the monsoon fury is considerably reduced does one get a long climbing season through the entire summer from May to September.

The second Indian expedition to Everest in 1962 had a more experienced team with Maj. John Dias as its leader and (then Lt.) M.S. Kohli as deputy leader. The summit team comprising Kohli, Sonam Gyatso and Hari Dang reached 8,748 m., just 100m. below the summit, before being beaten back by impossible weather conditions. They had a miraculous escape when Sonam Gyatso suddenly slipped taking along Hari dang, but was firmly held by Kohli. However, this expedition (though unsuccessful) set up some records in human endurance. The summit team spent three consecutive nights at the last camp 8500m (27,625 ft.) more than half the time without oxygen, having spent the preceding nights at south Col. This effort has never been matched again. Gurdial Singh and one sherpa were at south Col at 8,000m (26,000 ft.), for six days, mostly without oxygen.

We all learn through experience, and our first two abortive attempts on Everest were very instructive indeed for our future expeditions. The pioneering efforts yielded fruit in the first successful Indian expedition to Everest in 1965. Led by Maj. I.P.S. Ahluwalia, this expedition accomplished its successful assault on 29th May, 1965.

With this Indian mountaineering indeed came of age. Over the past three decades there have been any number of successful Indian expeditions to the Everest, Kanchnjunga, Nanda Devi and any number of towering peaks in the Eastern, Central and Western Himalayas. Apart from scaling the highest of peaks, mountain adventure has also involved

trekking across treacherous mountain passes and rafting along rapid flowing mountain rivers. A notable instance of such adventure was the Ocean to Sky Expedition led by Edmund Hillary in 1977 up the course of the Ganga from the Ganga Delta upstream all the way to Gangotri. This was a rare instance of successful upstream rafting along a rapid flowing mountain river towards its source.

It was in 1974 that the Japanese Junko Tabei became the world's first woman to set foot atop the Everest summit. Here again India did not lag far behind in proving the skill and endurance of her woman mountaineers. In 1984 Bachendri Pal emerged as the first Indian woman to successfully scale Everest, while 1988 saw Santosh Yadav emerge as one more successful Indian woman mountaineer to scale Everest. Bachendri Pal today is playing an active role in inspiring and promoting mountain adventure in the country. In 1997 she organised a pan-Himalayan trekking expedition which started from Lohit at the east end of the Himalayas in April '97 to terminate at the Siachen Glacier in Ladakh in October '97. The trek to the Himalayas' west end at Gilgit would have been impossible in view of the illegal occupation of the Indian territory by China and Pakistan. The Siachen Glacier situated over 18,000 ft. has today emerged as the world's highest battlefield, with Indian and Pak forces facing each other for years together in a very uneasy calm which is broken by sporadic fire across the line of control. The vital link to Siachen in the Leh-Nubra Road, which is the world's highest motorable road situated at an average altitude of 17,000 ft..

As already mentioned, Nanda Devi (25,689 ft.) used to be India's highest peak before Sikkim's accession to India in April '75. The Nanda Devi sanctuary has engaged the special attention of the government for special protection of the Nanda Devi Sanctuary Biosphere Reserve, which, thanks to the snowbound terrain has remained one of the rare examples of totally unpolluted ecosystems of our country. To preserve the ecological balance of this biosphere reserve, expeditions to Nanda Devi and its neighbouring peaks are allowed only from routes outside

the Nanda Devi Sanctuary. It was in 1939 that the Nanda Devi Game Sanctuary was established by Tilman and Shipton. After 50 years of successive trials and failures, it was Eric Shipton together with W.H. Tilman who successfully forced their way up the Rishiganga gorge into the inner sanctuary on the Nanda Devi base. In 1936 W.H. Tilman and N.E. Odell successfully scaled Nanda Devi. In 1978 an Austrain expedition successfully scaled Nanda Devi with oxygen.

Soon after its establishment in 1954, the HMI Darjeeling organised a highly advanced course to scale Kamet in 1955, Saser Kangri in 1956 and Nandadevi in 1957. The Kamet expedition was successful. The Saser Kangri team which included M.S. Kohli missed the main peak but succeeded in climbing Sakang. All these expeditions were led by Nandu Jayal. In 1958 Sonam Gyatso and Dawa Lama steered the Indian team to success in climbing Cho Oyu. The expedition was led by Keri Bunshaw. Unfortunately Nandu Jayal was killed in this expedition. In 1958 Trishul was climbed again by Lt. P.P. Mehta of the Indian Navy in an expedition led by Narinder Kumar. In 1959 an all-navy team led the (then Lt.) M.S. Kohli climbed Nanda Kot, with Kohli and K.P. Sharma as summiteers. These successes of the Cho Oyu Sponsoring Committee led by the formation of the Indian Mountaineering Foundation (IMF), with which it was decided to take the Everest Challenge in 1960. The sponsoring committee with N.R. Pillai as Chairman had two important members, S.S. Khera and Harish Sarin. Over the decades the IMF together with the HMI Darjeeling, NIM Uttarkashi and WHMI Manali has rendered yeomen service in advancing the cause of mountaineering and adventure on the part of men and women alike.

The basic as well as advance courses of HMI, Darjeeling, involve a long trek across western Sikkim, with acclimatisation stage-by-stage over three-night periods. The acclimatisation camps on the trek are at Bakim (8,600 ft.) and Jamlingkhang (11,600 ft.), before moving ahead to the base camp at 14,600 ft. The five-day training at the base camp culminates in the scaling of Bidhan peak (18,000 ft.) for the basic course and Fray peak (19,000 ft.) for the advance course. Before

reaching Bakim there is a halt at Yuksam (5,800 ft.) too, though this is not for acclimatisation. For a normal healthy person the breathing upto 9,000 ft. is nearly as good as at sea level. Thereafter one needs acclimatisation over three-night periods at altitudes around 9,000 ft, 12,000 ft, 15,000 ft, etc in 3,000 ft. stages. It is around such altitudes that acclimatisation transit camps are located.

Though the climbing season is mostly restricted to the intermediate periods between the monsoon and winter, there are some adventurer who choose the off-season periods. A shining example in this regard is the Japanese mountaineer Yasuo Kato who successfully scaled Everest in January '83, defiantly weathering the bitter icy winter chill. He narrowly escaped being swept off the Everest summit by a terrible blizzard that struck before he had time to even reach the reasonable safety of the summit camp. His miraculous escape and return to safety was indeed a landmark in the history of daring mountaineering feats.

Another example of off-season mountaineering was the monsoon adventure of the German mountaineer Bauer on Kanchenjunga. No, it was not a case of rash and reckless adventure. It was a very well planned and calculated risk taken by Bauer based on various meteorological observations including monsoon studies. Weather observations in the Himalayas have shown the maximum chance of calm and clear weather to be prevalent during autumn, though the chances of inclement weather can never be ruled out even in this season. However, the autumn is very short-lived, with the monsoon lasting through September and the winter setting in by late October. Spring and early summer through April and May surely provide a longer climbing season, but with maximum chances of thundery conditions at lower altitudes during this period, the chances of calm conditions higher up are greatly reduced. During the monsoon thundery conditions are minimal, and so are the chances of stormy conditions. The precipitation, though extremely heavy, is accompanied by little wind. Hence the blinding and treacherously heavy monsoon snowfall at high altitudes is rarely accompanied by raging blizzards that would enhance the danger.

Thus Bauer decided to embark on his Kanchenjunga adventure in late June and July. His calculations proved perfectly correct. Though it was a most arduous climb in the face of very poor visibility and incessant heavy snowfall, Bauer was undaunted and took comfort in the remarkably still and calm mid-monsoon conditions. And finally he did succeed in conquering Kanchenjunga summit from which he returned safely, thus setting up a record in off-season mountaineering.

The HMI, NIM, and WHMI, apart from their basic and advanced mountaineering courses in the autumn, spring and dry summer, also conduct various adventure courses off-season. It will be appreciated that the maximum scope for mountaineering naturally exists at the high altitudes of the Himalayas as against any of our other mountains. However, the other mountain ranges too provide wonderful scope for trekking and very interesting and rewarding nature study travels. For a long time this potential of our other mountains had not been tapped. Anyway nowadays various nature, adventure and trekking clubs throughout the country have been taking keen interest in making the best of our other mountains. In this connection the Western Ghats are proving to be of maximum interest to the trekkers and nature lovers in view of the forests and the scenic beauty. As already mentioned in chapter 1, there are any number of splendid waterfalls all along the Western Ghats, especially in the southern portions (Goa southwards).

The vast elephant country comprising Bandipur sanctuary in Karnataka, Periyar sanctuary in Kerala and Mudumalai sanctuary in Tamil Nadu can be of immense interest to nature lovers. Apart from the sanctuaries themselves, the neighbouring regions of the Western Ghats can be very rewarding to any nature loving adventurer. The Yana forest in Karnataka with its wonderful scenery and variety of flora and fauna is indeed a treat to any nature lover who chooses to go trekking off the beaten track. The Silent valley in Kerala with its unique flora and fauna is also very much worth a nice long trek. The greatest possible care should be taken to maintain the ecological balance of such verdant forests as is being done with regard to the Nanda Devi

sanctuary and its biosphere reserve. The method no doubt will be vastly different since the climatic conditions are entirely different between the tropical rain forests of the Silent valley and the cold temperate to frigid climate of the Nanda Devi region.

Nowadays problems are being faced owing to the increasing use of disposable plastic containers by trekkers and mountaineers, as such material is not bio-degradable. It leads to acute disturbance to the ecological balance. A solution to this problem may be found by evolving appropriate technology whereby equally convenient disposable containers are made of natural products rather than plastic or other synthetic products. Besides, the criminal sullyng of our environment is also resulting from the manner in which our people keep sullyng the place indiscriminately, failing to even cover their waste with mud while trekking in the forests. As good citizens we should all get together in this noble task of maintenance of our environment and the ecological balance.

FLORA AND FAUNA

From time immemorial our mountains have been the very cradle of such a vast variety of flora and fauna. As already mentioned, mountain ranges have sustained within our vast south Asia sub-continent a number of natural geographical divisions by acting as umbrellas or windshields. We have also seen how mountain ranges in themselves form natural zones with varying climatic conditions over different altitudes and between windward and leeward sides of the ranges. We thus have on the mountain ranges as also in their valleys and neighbouring plains the terrain and climatic conditions suited to a wide variety of flora and fauna.

Our national animal the tiger used to roam the hill forests throughout our country till indiscriminate poaching posed a great danger to this species. In our vast plains the tiger's main habitat is to be found in the Sundarbans of coastal Bengal where of course we have the Royal Bengal tiger. Otherwise our tiger habitats are to be found mostly in jungles situated in or near hilly regions. We have the notable example of Jim Corbett National Park near the foothills of the Kumaon Himalayas. This happens to be our oldest national park. Set up in 1935 as Hailey National Park, it was renamed Ramganga National Park after Independence (as the Ramganga is a major river flowing through it). But in due recognition of Jim Corbett's pioneering efforts in setting up this national park, it was very soon appropriate to honour this great naturalist by finally renaming it the Jim Corbett National Park. The vast area of this national park is the home of tigers and leopards.

Jim Corbett lived and worked in the Kumaon and Garhwal regions early in the 20th century when British and even Indian poachers were posing the greatest possible menace to the tigers and leopards of the region. His keen observations as a naturalist revealed two kinds of dangers resulting from poaching. One of course was the total extinction of the animals. But side by side with this, another danger was emerging by way of man eaters hitherto unknown. His observations revealed that in the normal course tigers are not at all interested in attacking human beings except when they perceive them as a threat to their own existence. But poaching and careless hunting would often leave tigers wounded, not killed. The wounded tigers in turn are unable to stalk their normal prey, and thus turn out to be man eaters. These observations are clearly revealed in Jim Corbett's book entitled *The Man Eaters of Kumaon*.¹

Based on his observations Jim Corbett evolved a two-pronged strategy aimed at the welfare of mankind as well as tigers and indeed of the environment in general. One was to track down and finish off the man eaters, in which he played a very active role. The other was to fight tooth and nail against poaching and thereby ensure the preservation of the tiger, leopard and other animal species. Thanks to his ceaseless efforts, the tiger dominated wildlife region adjacent to the Kumaon Himalayas was developed into the Hailey National Park (now Jim Corbett National Park). This has been Independent India's source of inspiration for all its programmes aimed at wildlife preservation including the Project Tiger launched 1973. The very purpose of our sanctuaries and national parks is to protect and preserves our wildlife in its natural environment with absolutely no human encroachment.

Other prominent tiger reserves are found in the Kanha National Park near Rewa in Madhya Pradesh. and the Simlipal National Park in Orissa. The Kanha National Park located on undulating upland terrain not far from the Mahakaushal hills is most famous for the white tiger which has become a great source of attraction to tourists and nature

lovers. The Simlipal National Park in the north end of the Eastern Ghats in Orissa is not merely a wonderful tiger reserve but also a delight to nature loving trekkers thanks to its splendid waterfalls.

The much coveted and admired elephant too is an all-India animal whose habitat is in thick luxuriant forests. The most prominent elephant terrain in the country is found in verdant evergreen tropical or sub-tropical rain forests situated in wide valleys or else plains flanking the foothills of mountain ranges in both the south western and north eastern regions. For instance we have three vast elephant terrain amidst the Western Ghat valleys comprising the Bandipur sanctuary in Karnataka. Periyar sanctuary in Kerala and Mudumalai sanctuary in Tamil Nadu. Elephants are generally abundant in the forests of the Western Ghat foothills and valleys in Kerala. The Himalayan foothills of Sikkim, Bhutan and Arunachal Pradesh together with the adjoining plains of North Bengal and Assam are replete with elephant dominated forests. Vast areas of elephant country are also found in the foothill forests along the Indo-Burma border as well as other foothill areas of the north eastern region.

Our hill forests abound in all species of monkeys including langurs. Monkeys really need no sanctuary. They are able to thrive wherever there are trees, even in open areas with just a few clusters of trees. Monkeys are thus found even in thickly wooded areas of our big metropolitan cities. Fortunately monkeys are hardly even hunted and hence safe from the poaching menace. However, they face another kind of threat resulting from indiscriminate deforestation. Monkeys live in the trees, and the felling of trees has proved to be the greatest menace to monkeys. Deforestation, if unchecked, entails the grave danger of gradual extinction of monkeys owing to the resultant absence of suitable habitats. In such an undesirable situation only a miraculous mutation within the species will be able to save the monkeys from extinction and such a mutation is obviously a very big gamble. But extinction apart, this indiscriminate deforestation is now resulting in another serious problem, viz. the rapidly increasing monkey menace in urban

and rural areas. The depletion of forests is creating a situation where monkeys are unable to find their food or other sustenance within the forests. They are therefore getting increasingly tempted to snatch away food packets, fruits, etc. from people even in populous areas of hill stations. Today places like Shimla and Mussoorie are reeling under this monkey menace more than ever before, following the atrocious deforestation going on all around.

The rhinoceros is found largely in the plains flanking the foothills of the north eastern region. The rhino habitat is largely in the Manas sanctuary in the Assam plains near the foothills of the Bhutan Himalayas and the Kaziranga sanctuary in the Assam plains situated between the Brahmaputra south bank and the Mikir hills (Karbi hills). Of the two it is Kaziranga which is world famous as the one and only habitat of the one horned rhino. As already mentioned in Chapter 1, Kaziranga while having the Mikir Hills as its southern boundary, also affords as splendid snow view of the Arunachal Pradesh Himalayas located well over 100 miles to its north. Daily elephant rides are organised through Kaziranga sanctuary for wonderful glimpses of the one horned rhino as well as a variety of other animals. March is the best month as the jungle grass is at its scantiest in late spring which is the driest part of the year.

Among other national parks situated in or around hilly regions we have the Satpuda National Park and the Pachmarhi National Park, both in Madhya Pradesh's Hoshangabad district. With a vast area of 524 sq. kms. the Satpuda National Park abounds in tigers, panthers, antelopes, bluebills, sambhars and bears. The Pachmarhi National Park with an area of 461.85 sq. kms. is the home of tigers, panthers, antelopes, chinkaras, sambhars and bluebills.

Sanctuaries and national parks apart, our hills and mountains even otherwise have such vast treasures of flora and fauna, and every attempt should be made to preserve their ecosystems. The Silent Valley in Kerala is a wonderful example of a totally unpolluted and undisturbed ecosystem replete with a unique variety of flora and fauna. It is indeed a feast to the eyes of any nature lover.

So near and yet so far a good 2,000 miles north, north eastwards from Silent Valley we have perhaps the only other example of a most natural and ecologically undisturbed biosphere reserve, viz, the Nanda Devi Biosphere Reserve. Indeed its one and only marked affinity with the Silent Valley is its totally unpolluted and undisturbed ecosystem. Otherwise with its climate ranging from cold temperate to frigid, and its approach routes snowbound most of the year, the Nanda Devi Biosphere Reserve presents a most striking contrast to Silent Valley's damp and evergreen tropical luxuriance. It is heartening to note the great care being taken to preserve the ecosystem here in all its purity. All Nanda Devi expeditions have to avoid this biosphere reserve. The Zoological Survey of India, Dehradun has been conducting several faunistic studies of this biosphere reserve situated in the high mountain ranges of the Rishi Ganga Valley in the Kumaon Himalayas.

In the Eastern Himalayas the Arunachal Pradesh, Bhutan and Sikkim foothills are replete with verdant subtropical evergreen rain forests whose luxuriance particularly in Arunachal Pradesh often seems to resemble that of the evergreen tropical rain forests. This kind of affinity between the south western and north eastern regions surely makes one feel that in its flora and fauna too India represents unity in diversity. The abundant moisture and perennially high humidity is a common climatic factor leading to such affinity. At altitudes above 6,000 ft. no doubt the eastern Himalayas, like the western Himalayas, are nicely covered with evergreen conifer forests as also deciduous temperate forests of birch, oak, etc.

At moderate altitudes from 5,000 ft. to 11,000 ft. in Arunachal Pradesh and Sikkim beautiful flowers of so many varieties adorn the mountain slopes. Sikkim indeed takes the cake with orchids and rhododendrons providing a feast to the eye through the spring months. In this regard Yuksam (5,800 ft.) and Bakim (8,600 ft.) are verily the trekker's paradise in spring. The Kyongnosla Alpine Sanctuary in Sikkim is famous for a very rich variety of beautiful flowers including rhododendrons. The unique feature of Kyongnosla is that it abounds in

flowers not only in spring but also during the premonsoon and even monsoon periods. It is thus a nature lover's paradise right from February to September.

In the Garhwal Himalayas, the Valley of Flowers in Uttarkashi district is a trekker's paradise especially in spring and the dry summer for its splendid variety of flowers. The Western Himalayas between 4,000 ft. and 10,000 ft. altitude are replete with splendid conifer forests, with the fragrance of the devdhar pines being particularly refreshing. At the same time there are also the temperate deciduous forests of trees like birch and oak.

The breathtaking forest scenery of Kumaon and Garhwal is highlighted in detail by E.S. Oakley in his book *Holy Himalaya* describing the journey to Almora from the foothills in the late 19th century, Oakley writes, "we now pass through the Bhabar forest belt of Kumaon where the steep and lofty forest-clad mountains come into sight. The steep climb begins with the backdrop of a lofty wall of forested mountains rising 6,000' to 10,000' above sea level". He adds that sal trees dominate the luxuriant sub-tropical Bhabar forests at the foothills and any trekker would be lost in the high vegetation growth around him. According to him the Bhabar region right at the foothills together with the Tarai region some distance away, is world famous for tigers, leopards and elephants, with huge pythons sometimes recoiled around trees. Regarding the splendid Almora scenery he mentions the thick forests on the upper slopes of most of the surrounding mountains despite the absence of trees for a few miles around Almora. Talking of the beautifully verdant scenery of the valleys and hillslopes during the monsoon, he describes the delicate and endlessly diversified greenery as a feast to the eyes. We have yet another vivid portrayal of the Kumaon scenery in an article by John Strachey in the *Calcutta Review* during the 19th century. He writes, "Let us suppose that we have ascended the first range of hills that rises above the plains in Kumaon to the lofty peak of Cheena which overhangs the lake and station of Naini Tal.

From this point, the elevation of which is 8,700 ft., an observer can obtain an admirable general idea of the structure of this part of the Himalayas. Our horizontal distance from the foot of the hills is only 5 miles. We look down over the beautifully wooded mountains of the Gagar range, covered thickly with oak and pine, mingled with the gorgeous rhododendron, to the Bhabar forest, which lies almost at our feet 7,000 ft. below, and beyond to the Tarai and the great plain. Turning to the north, we have before us a scene which the painter and the poet can alone describe, but which can never pass from the mind of one who has once beheld it. A chaotic mass of mountains lies before us, wooded hills and deep ravines, and dark blue ranges, rising one above another and behind all, piled up into the sky, the snowy peaks of the great Himalayas. He who has seen this view, or the still finer ones that are to be obtained from other parts of central Kumaon, may feel quite satisfied that he has seen the most sublime and astonishing of all earthly spectacles."

Such colourful descriptions surely portray not only the imposing and majestic grandeur of the invincible snow peaks higher up but also the rich and diverse variety of the beautiful vegetation all around us at the lower or moderate altitudes on the mountains. In his book *Holy Himalaya* E.S. Oakley goes ahead to portray the flora and fauna as one treks deeper into the Kumaon Himalayas eastwards and north eastwards from Almora up the Sarju valley and right on to the Pindari Glacier. The wide diversity of vegetation ranges from the bamboo and other subtropical forests at the bottom of the Sarju valley to the scrubby vegetation just below the snow line. The mountain slopes at moderate altitudes below 10,000 ft. are densely forested with pines, hazels and maples. After moving upstream along the Sarju for 14 miles one reaches Kapkot. A little above the river from here we get majestic upward and downward views of the river valley, and a peep of a snow peak above the nearer hills. The forests here abound in goral (Himalayan chamois), kakar, a kind of antelope: a little further at Dhankuri the splendid monal pheasant are found. The Sarju itself abounds in masheer (Indian

salmon). The lofty Dhankuri peak is covered with forests of oak, cypress and rhododendron, carpeted with every variety of ferns and mosses, and abounds in wild strawberries. E.S. Oakley describes the trek further ahead, still deeper into the Himalayas towards the Tibet border as one enters the Pindar valley, moving upstream along the Pindar. Talking of the splendid mountain scenery in this area he writes, "Words cannot describe the grandeur of these towering fortresses of rock, clothed as they now are with the loveliest of verdure, and adorned with foaming cascades and lightly spraying waterfalls, some of which seem to disappear in mid-air and form again lower down the mountain side." On the flora of this area he further adds that every variety of trees and plants grows in successive elevation zones, with maiden hair ferns of the finest species growing one foot long. The rich diversity of vegetation includes oak, pine, yew, rhododendron, laurel, holly, ivy, creepers, ferns and mosses, blackberries, wild strawberries, large red currants, chestnuts, walnuts, rowans, birches, hazels, Scotch thistles and strange fruits and flowers.

The Bhagirathi and Mandakini valley too are replete with floral fragrance which greets any pilgrim approaching Badrinath and Kedarnath. After traversing woods of oak, walnut, chestnut, maple and hazel trees, one passes through a profusion of roses and syringa bushes, as well as fragrant yellow primroses and pale, rose coloured auriculas nearer the snowline. Indeed the floral fragrance near the eternal snowline can be overpowering. As for the pilgrim who chooses to trek to Kedarnath or Badrinath through Kumaon via Dwarahat and Karnaprayag, he is in for an endless variety of enchanting scenic beauty. The richest vegetation on the route is from 6,000 ft. to 10,000 ft. In autumn the ground is often covered with flowering plants-white anemone, columbine and a delicious kind of strawberry. This is unique example of autumn being the main flowering season in any cool temperate or cold temperate climate. Towards the Kedarnath vale itself the slopes are beautifully covered with dwarf rhododendrons, iris and anemone.

Let us now take a delightful trek through Meghalaya which

abounds in a very rich and wide variety of flora and fauna, with the torrential rainfall sustaining verdant and luxuriant vegetation, ranging from tropical to temperate depending on the altitude. The dense forests at higher elevations abound in wild life. Sal is the most important forest produce, with Northern Meghalaya having a fine variety of Sal forests. The trees are broad and rich in the Garo hills and West Khasi hills, but eastwards they are reduced to scattered Sal saplings. The Khasi pine (*pinus insularis* or *pinus khasia*) is most abundant in the upper Khasi Hills and Jaintia Hills at altitudes of 3,000 ft. to 5,000 ft. The Jaintia hills people have evolved an annual indigenous tree plantation system to make good the loss through use of forest produce. Bamboo is the principal tree in the Garo hills, while berries as also chestnut, oak and fir trees are abundant in Upper Meghalaya. The Khasi hills temperate forests are located largely near water courses and springs. In effect they are like temperate rain forests requiring much more rainfall and thriving under far damper conditions than the Himalayan (esp. Western Himalayan) temperate forests. The Khasi hills and Garo hills have rich and varied flora around places like Shillong, Cherapunji and Mairang. The vegetation varies according to the terrain, with its typical character at hilltops, precipitous slopes and marsh lands. Altogether, the Meghalaya forests would have been far more dense and luxuriant were it not for the vast area of picturesque meadows as also of marsh lands. Wild plants including orchids are in abundance near river sources at higher elevations. A good 200 varieties of orchids are found at Balpakram hill, Simsang valley, Bagmara side and Nokrek range. Meghalaya also has a wide variety of medicinal plants or herbs. Most peaks, ranges and gorges are clothed in verdant evergreen vegetation, replete with orchids, wild flowers and a great variety of botanical resources.

Meghalaya is replete with a rich and wide variety of wildlife. While in ancient times game sanctuaries provided sustenance to the local people, the effort today is to preserve and protect wildlife. Elephants, apes, monkeys, deer and sambhar are found close to human habitation, with elephants in abundance (often in herds) in winter at

the northern foothills, and elsewhere too in the Garo hills. The Garos indeed have a special fascination for elephants. Monkeys are found mostly on the forest fringes. Unlike other regions they are not found very deep inside the forests. Different deer species, Sambhar and hares are found at different altitudes. The wildlife deep inside the forest comprises tigers, leopards, wild pigs, wild buffaloes, mithuns and bears, besides squirrels, musk rats, pangolins and antelopes. Most of the major species are predators but some are herbivores that live on fruits, vegetables and herbs. Rhinos are very rare. The bird life includes pheasants jungle fowls, wood cocks, cotton teal geese, plovers, snipes, quails, spot bills and whistling teals, besides peacocks, partridges, pigeons, hornbills, mynahs and parrots. The birds are found mostly in thickets, shrubs and bushes. There are lots of other birds including migratory birds. The Garo hills and Khasi hills are a convenient transit route for herds of animals such as leopards and tigers from Bangladesh to Assam. Surely international borders can mean nothing to the animals! Thus apart from its indigenous fauna, Meghalaya is also the abode of the Bengal and Assam fauna, including the Royal Bengal tigers whose original habitat is in the Sunderbans. While some mammals and birds are found in the reserve forests, the most vigorous ones live in jungles and hilltops. Steps have been taken to enlighten the people on the crying need for wildlife preservation, forest conservation and afforestation.

An amazingly unique feature of the Meghalayan fauna is found in the world famous rock caves of bats near Siju village in the Garo hills. These rock caves provide such wonderful glimpses of mysteries concealed in nature.

No discussion on India's rich variety of flora and fauna can ever be complete without mention of the numerous sanctuaries and national parks of Karnataka. The Bandipur National Park already mentioned, is the habitat of not only the elephant but also the tiger. Bandipur is one of our centres for the Project Tiger. Besides we also have peafowl, partridges, quails, hornbills, giant squirrels, wild dogs (dhole), sambhars and barking deer. The trees here include teak, rosewood, honne, mati,

bamboo and sandalwood. The best period to visit is from June to October.

At an altitude of 5,091 ft. in the Western Ghats of Karnataka we have the little known, yet beautiful and serene, Biligiri Rangana hills resort, which is a wildlife paradise. The animals here include gaurs, chitals, sambhars, bears, elephants, panthers and tigers all thriving amidst the sweet sounds of rustling trees, singing birds, whistling winds and swirling streams. The best period is from September to May.

Amidst undulating valleys off the Western Ghats we have the Nagarhole National Park in Coorg and Mysore Districts. Criss-crossed by sparkling streams, Nagarhole is the abode of snakes. The name itself is derived from the words "Naga" for snake and 'Hole' which in Kannada means stream. The other animals here include four horned antelopes, panthers, warblers, hornbills, spotted deer, mouse deer, pangolins, panthers, gaurs and giant flying squirrels. The trees here include rosewood, teak, sandalwood and silver oak.

There is also the enchanting Bhadra Wildlife Sanctuary situated near the Sahyadri foothills of Shimoga and Chickmagalur districts of Karnataka. The jungle secrets reveal themselves as you go deep into the seemingly silent forest. The silence is broken by the birds' melodious songs, the monkeys' incessant chatter and the elephants' trumpeting. This sanctuary is also the habitat of the gaur, the barking deer, the flying fox, the mongoose, the panther, the macaque, the babbler, the barbet, the bluejay, the kingfisher, the robin, the weaver bird and the drongo. The best season is from November to March.

An interesting feature of the Coorg district fauna is the tendency of the larger predators to move on to the forest outskirts or adjoining tracts during the monsoon. Only small animals remain in the forest during the rains from June to September. Even within the forests the bigger predators are found near streams on terrain which is not too steep or precipitous as in the extreme west deep in the Western Ghats. Another interesting feature is that despite the abundance of predators including crocodiles and other reptiles the mortality resulting from

them is amazingly low. The Coorg forest herbivores include monkeys, bears and elephants. There are three kinds of monkeys, viz. black, grey and brown. The black monkey is small with greyish whiskers and found in the Western Ghat forests. The brown monkey too is found in the Western Ghat forests and has a long tail and light grey face and chest. When fully grown it is about two feet high in the sitting posture. The grey monkey or *Hanuman* is larger than the black monkey and found more in open country. It has a long tail and bare reddish face. Black bears are few in number and found in the vicinity of the Pushpagiri hills. The bison called kati in Kannada is found in reserve forests and denser jungles throughout the year.

With its diverse birdlife Coorg district is verily an ornithologist's paradise. After the monsoon thousands of birds arrive dressed in their fine plumage. The birds of prey include eagles and soaring vultures found in the jungles. The kites and percher birds are common in Coorg. The beautiful Malabar trogon with its splendid plumage is a delightful spectacle near coffee estates.

The flora and fauna over other regions of the Sahyadris of Karnataka as also in Goa and Maharashtra is of a similar nature. Similar climatic conditions sustain the same type of tropical evergreen rain forests on the windward side of the watershed. Today it is tragic to observe men's indiscriminate encroachment on nature through the atrocious denudation of forests. The deforestation has reached a level where it is having very adverse impact on the climate and the ecology in general. The drastic reduction in rainfall during the monsoon together with the drastic reduction in humidity and the soil's moisture retentivity over the dry seasons, is often resulting in great reduction in evergreen forests. Consequently even in areas where the forest cover remains, the proportion of deciduous forests is increasing. During the dry seasons the existing Western Ghat forests are now a days taking a bare and dry appearance hitherto totally unknown.

Nagaland surely has its share of little known, yet beautiful wildlife sanctuaries. The largest of them viz. Intangki Wild life sanctuary has

an area of 20,202 hectares. The other sanctuaries are Puliebadze sanctuary (923 hectares), Fakim sanctuary (642 hectares) and Rangapahar sanctuary (470 hectares). The Intangki sanctuary is the home of some rare species of birds. Apart from these sanctuaries, the virgin forests of the Satoi Range of Nagalands's Zunheboto district are indeed a treat to any nature loving trekker. This is the natural habitat of the Blythii Tragopan, a rare bird on the verge of extinction. Rare rhododendrons adorn the hillsides through April and May. Also situated 8 kms. from the Zunheboto district head quarter. we have the Ghosu Bird Sanctuary maintained solely by the village community. This sanctuary is the habitat of more than 20 species of endangered birds. Migratory birds too can be sighted between June and September. It is heartening to note the keen involvement of the village community in strictly prohibiting hunting and poaching in this area.

We have thus been around the country and had wonderful glimpses into the splendid variety of flora and fauna of the hilly regions and their adjoining plains. Our country is indeed blessed by nature and gifted with the world's richest and widest variety of flora and fauna.

FAIRS AND FESTIVALS

Fairs and festivals in India add colour and gaiety to the people's lives community gathering and participation in fairs and festivals gives a heartwarming character to our folk culture, especially in the hilly regions of our country.

Fairs and festivals in our hilly regions have their own invincible charm. Though the fairs and festivals are mostly of a religious nature, there is no doubt about the prevalence of a secular sociocultural component of different religious festivals celebrated by tribes practising different religions. There are other cases where hill tribes even after conversion to a different religion continue to celebrate the same festivals associated with their original tribal religions. Only, the same festivals are celebrated with purely social and cultural significance. This is a very common feature of fairs and festivals in the north-eastern states of Nagaland, Mizoram and Meghalaya where almost the entire population today is Christians.

The secular sociocultural aspect of even our religious festivals, which is no doubt a very significant character of Indian culture, is all the more prominent with regard to folk culture, especially in our hilly regions. This nurtures and sustains a fellow feeling that proves a strong binding force among people of different faiths. For instance it is quite common to find the tribals of the Satpudas in Maharashtra and Madhya Pradesh jointly celebrating the festivals of different religions. A notable example in this regard is found in Kundiapani in the lap of the Satpudas

of Maharashtra's Jalgaon district. Kundiapani is inhabited by three tribes, viz. the Pawras who are Hindus, the Tadvīs who are Muslims and the Bhils who are Christians. During all major religious festivals of these three religions the entire hamlet is gay and colourful with joint celebrations by Hindus, Muslims and Christians, who get together as one community. This is just one shining example of India's unity in diversity as manifest in the community life of some of our hill tribes.

The annual Amarnath Yatra in Kashmir, which concludes on *Shravana Purnima* (as per the Saka Calendar), is well known throughout the country. Braving the arduous trek to an altitude of over 12,000 ft., thousands of devotees from all over India visit the Amarnath cave in Kashmir's Karakoram Range for a *darshan* of the *Shivalinga* formed of ice. The *Shivalinga* which melts away appreciably through midsummer in late June and July, just about begins to get back to size towards *Shravana Purnima* which ushers in the first signs of the approaching autumn. At this time the *Shivalinga* is in its best form.

According to tradition it was a Muslim *bakerwal* (shepherd) who first discovered the *Shivalinga* in the Amarnath cave about 500 years ago. On spotting the ice formation resembling a *Shivalinga* he immediately went across to a Hindu priest nearby and informed him about it. Thereafter the Hindu priest went to the cave and saw the Amarnath *Shivalinga* for himself, and thus began the Amarnath Yatra tradition as word spread about the discovery of this cave.

Prominent among Hindu festivals in the Western Himalayas is the all famous Kullu Dussehra, which is really a grand finale to various festivals through the summer. The advent of summer gets the *paharis* of the Kullu valley to revive their contacts with the remote Pangi, Malana and Bara Bangabal valleys. As the village *melas* now get under way the village deities are paraded up and down the steep hill tracks to accompaniment of flutes and drums.

Interestingly indeed, the Kullu Dussehra is mostly an autumnal culmination of the worship of various village deities through the dry

summer and monsoon, and rarely ever features any *Durga Puja*. In his book *Into India* John Keay writes, "There are enough deities on the upper Beas without importing the whole of the Hindu pantheon. And the Dussehra festival, though one of the greatest social events for the people of the western Himalayas, is essentially a get together of gods; every village has at least one. Sitting in a palanquin in his tent or going the rounds of his neighbours at the fair, each god may not look particularly manlike; just a collection of gold and silver masks reclining on a bed of brightly coloured silks and perhaps shaded by a parasol. But appearances can be deceptive. The gods and goddesses of Kulu expect regular meals, occasional baths and constant attention. some even are land owners, subject to the land ceiling and not averse to a bit of litigation."

Kullu's principal deity is Raghunathji, which is also the main deity of worship during the Kullu Dussehra. But the festival here features not Ramlila but the local traditional way of paying respects to Raghunathji and his patron Raja. All the gods of Kullu valley are brought into the tent of Raghunathji and Raja in full view of jubilant crowds. Flutes and drums herald their approach while dancers in marigold chains dance to the accompaniment of horns. The social get together and cultural interaction with people from all over the country gives a good boost to trade during the Kullu Dussehra.

In our hilly regions (as often in the plains too) there are weekly as well as annual fairs (melas). The weekly fairs have no religious significance and are connected only with local trade and commerce. But the melas are of religious significance, and in hilly regions they are often centred around some famous local shrine that reaps an extensive harvest at the annual festival.

The largest and most famous mela in Kumaon is the Bageshwar *mela* held in January, 27 miles north of Almora. Situated lower down in the Sarju valley, Bageshwar provides a cosy midwinter venue, for this major annual fair, frequented by Almora's barter traders, Bhotiyas from snowbound areas and multitudes of people from neighbouring villages.

It is the Gomti's confluence with the Sarju a little below which makes Bageshwar sacred-it is often called Uttar Banaras. The Bageshwar or Vyagreshwar shrine located at the Gomti-Sarju confluence is perhaps symbolic of the tigers roaming the hill forests here. Though the temple as it now stands was built by Raja Lakshmi Chand around 1,450 A.D. an interesting stone slab inscription in Sanskrit reveals a much earlier date (perhaps 9th century A.D.). This is presumably a relic of the Katyuri Rajas of Kumaon. This is pointed out by E.S. Oakley in his book entitled *Holy Himalaya*.¹

The Bageshwar mela also called Uttraini mela witnesses brisk trade in ponies, goats, sheep, furs, yak tails, footwear, salt and books, besides dried and fresh fruits. The Bhotiyas bring down excellent ponies from the Indo-Tibet border. The religious aspect of this mela is a river-bath before day break in the Sarju-Gomti sangam (confluence). Villagers from surrounding areas camp there the previous night, singing songs around bonfires to keep the midwinter chill at bay. The first light of dawn sees the entire gathering step into the river for the holy dip after which they all return home.

The second most important annual fair at Bageshwar is the Thal mela held at Bageshwar temple in April. The festival pattern here bears great affinity to the folk festival pattern in many other parts of the country, where the most important of the annual festivals are around *Sankranti* at mid January, and the advent of the local New Year. Such festivals are centred around either the conclusion of the major annual harvest or else the premonsoon preparation of the soil for the forthcoming crop season. Examples can be found in the Pongal festival in Tamil Nadu during *Sankranti* (mid January), the Bhogali Bihu Festival in Assam during *Sankranti*, the Rangali Bihu Festival in Assam at mid April (Assamese New Year) and the Baisakhi Festival of Punjab at mid April (Punjabi New Year).

Popular religion itself in the Himalayas is of three types, viz. Vajrayana Buddhism, the worship of the principal deities of Hinduism

and the worship of purely local deities. As already mentioned, Himalayan folk have a character distinct from that of our plainsmen. Even in the central Himalayas and most of the western Himalayas where the overwhelming majority are Hindus of the *Sanatana Dharma* (normally recognised orthodox sects), it found that the worship of the principal Hindu deities is more the exception than the rule. There are any number of minor, purely local festivals at which the local folk deities dominate. The popular Hinduism here is centred very largely on the worship of these purely local deities symbolic of natural phenomena and the local flora or fauna. A striking example in this regard is the worship of Nanda Devi in Kumaon. The eradication of a severe cholera epidemic in Almora and its neighbourhood in the 1903 summer was traditionally attributed to Nanda Devi's grace. There is perfect religious and sectarian harmony among the hill people.

In the eastern Himalayas Vajrayana Buddhism is the principal religion of the original population of north Bengal, Sikkim and Bhutan. It is also the principal religion of many of the Arunachal Pradesh tribals like the Mijis of Bomdila and the Monpas of Tawang. But the vast majority of the Arunachal Pradesh tribals are Hindus not of the orthodox *Sanatana Dharma* sects but practising their own tribal religions centred entirely around typical local deities symbolic of natural phenomena. Their daily religion as also their fairs and festivals are based solely on the worship of local deities. Yet they are certainly Hindus in the wider sense of the term since their religions are all of Indian origin. The only orthodox Hindu tribals of Arunachal Pradesh are the Noctes who are Vaishnavas, but even their popular religion is dominated by typical local deities rather than Vishnu deities. In view of the predominance of purely local deities even among those of our hill folk who are Sanatani Hindus, it will surely not be wrong to regard the majority of our Arunachal Pradesh tribals as Hindus.

Likewise before the advent of Christianity the tribals of Meghalaya, Nagaland, Manipur hills and Mizoram too were Hindus in the wider sense of the term. Today even after conversion to Christianity they

continue to celebrate their age old festivals with purely social and cultural overtones. The rich and colourful folk culture of all our north-east Indian hill tribes of all religions is a vital contribution to the composite cultural heritage of our great country which has always nurtured an all embracing outlook.

Let us now take some glimpses into the fairs and festivals of Meghalaya. The Garos observe some fertility rites. Sacrificial rites mark the various stages of jhum cultivation, deweeding of plants and crop harvesting. The rites seek to invoke the spirits to save their grains from being devoured by wild animals as also to bless them with rain and a good harvest. The rites are lively with colourful dances, musical relays and jovial sports. The village Nokma plays a key role in fixing the festival dates, inaugurating the agricultural season and organising the main programmes.

The Garo New Year begins with the performance of Agalmaka which culminates in jhum burning. It being winter with minimum chances of heavy rain, the season is ideal for burning. The jhum fire burns all night as a prelude to the festival the next day. Various families perform egg sacrifices at the sacrificial sites of their respective fields. Rice and curry offerings are made at the sacrificial sites of the base altar made of a single oblong bamboo. The family feast (over beer brewed locally) follows in the evening at all households. The first crop sowing is done on conclusion of this ceremony which lasts a few days. During Denbilsia which precedes this ceremony, a goat is sacrificed at the Nokma's house in a specially constructed altar. A colourful dance is performed at night to the beat of gongs.

The other Garo festivals are Rongchugala, Ahaia and Wangala, of which the most significant festival Wangala marks the final fertility observance of the year. During Wangala every village looks gay and festive with people in new clothes and houses nicely repaired and renovated. Village roads, approach roads, lanes and water sources like wells are cleaned up as if to welcome the state guests. Cane and bamboo are brought over from the groves, while other timber and creepers are

heaped up. The final funeral ceremony of all deceased over the past year is performed in which sheds covering the ossuary are demolished once and for all, symbolic of the belief that the living households are no longer disturbed by memories of the deceased. Some ceremonies are marked by cow sacrifices and dances. Wangala lasts several days, with village to village variations. Lots of animals are kept in family stock, the best grains are stored and beer brewed in large vessels. The main sacrificial rite is a food offering wrapped in a plantain leaf. The festive dance is marked by gong beats with systematic rhythms. Colourful dances by girls are accompanied by the beats of male drummers and pipers. . .the rapport is wonderful. Boys and girls court each other. The dance itself signifies the digging of the soil, plucking of fruits, etc., with the first dance held at the Nokma's place. Thereafter batches of elegant and jovial dancers go out into the village visiting all houses. The Nokma's house is decorated and illuminated. During the Wangala festival every household partakes of the grand feast and contributes to the music programmes. This festival indeed reflects the Garo cultural heritage at its very best, projecting the rich folk traditions and philosophy of the people. All this is clearly highlighted in U. Hamlet Bareh's book on Meghalaya.¹

Before conversion to Christianity the Garos, Khasis and Jaintias of Meghalaya were all practising various tribal religions based largely on nature worship. Their deities were symbolic of various aspects of nature, and in Meghalaya too as in the Himalayas, many peaks were regarded as the abodes of deities. At the same time an interesting feature of the Garo religion is the belief in rebirth and transmigration of souls as a natural dispensation of justice by way of reward or punishment. In this regard the Garo religion bears great affinity to the Karmayoga doctrine of Hindu philosophy.

From Meghalaya we now come over to the Mikir Hills of Assam's Karbi Anglong district. Rongker and Chomangkan are the principal festivals of the barbis, also known as the Mikirs, who are a Mongoloid

tribe settled there since several centuries B.C. Rongker is basically a spring festival celebrated at the advent of the barbi New Year. While preparing the soil for the forthcoming crop season the people pray for a good harvest. For the well-being of the entire village the elders organise the worship of different deities to keep at bay all diseases and natural calamities throughout the year. Chomangkan is primarily a festival dedicated to the dead. The dates for this festival depend entirely on the convenience and requirements of the locality; the festival is observed for four days and four nights.

Manipur, a state with both Hindu and Christian population, is a land of festivities and merry making round the year. The Hindu (who are mainly Vaishnavas) live in the plains, while Christian population are found mainly in the Manipur hills. There is also a small Muslim minority in the Manipur plains. Christmas and Easter are therefore major festivals in the Manipur hills as in Nagaland, Mizoram and Meghalaya. But as in all hilly areas of north-east India, even after conversion to Christianity people continue to celebrate the age-old tribal Hindu festivals with purely sociocultural overtones. The main tribal festival in the Manipur Hills is the autumn festival Kut celebrated by the Kukis and Chins, besides Mizos too. This festival, also known as Chavang—Kut and Khodou, is a major festival of Mizoram too. It marks the culmination of the main annual harvest after the monsoon. This festival of joy and bounty is celebrated with thanks-giving to the Giver of the Abundant Harvest. The feast and merry making are marked by folk songs and dances. Every village holds this festival at its convenience on conclusion of the post-monsoon harvest. However, at all district head quarter and the state capital Imphal Kut has been celebrated on 1st November ever since 1980.

Manipur's most important festival is Yaosang, which features a 6 day celebration around the time of Holi. This festival is centred around the worship of Krishna and Chaitanya, and is observed mostly in the plains. Apart from the traditional Holi celebrations, Yaosang features the Manipuri folk dance Thabal Chongba, organised by boys and girls of

every locality during the six days.

Our entire north-eastern region has a rich variety of folk culture, inspired by the very beauty and bounty of nature at its very best. The folk songs and dances of the hill tribes and even of the plainsmen often vividly reflect the splendid natural scenery all around.

Let us now come back to our block mountains, beginning with the Eastern Ghats of Orissa. We have as many as 62 tribes inhabiting the forests and hilly areas of Mayurbhanj, Kendujhar (Keonjhar), Phulbani, Sundargarh, Sambalpur, Balangir, Kalahandi and Koraput district. Let us take a few colourful glimpses into the festivals of some of the principal tribes of the Eastern Ghats.

The Kondhs are found throughout Orissa but mainly in the hilly and forested regions. Their main festivals are centred around sowing and harvesting; the feast goes together with dancing and singing. Sowing is marked by worship of *Dharani Devata (Thanapenu)*, with animal sacrifices made to the deity for a good crop. During the Sarupenu festival the Kondhs resort to worship on the hills and enjoy the day feasting and dancing. the Koyas are the principal tribe of Malkangiri in Koraput district. Their main religious festivals are Bijja Pandu in May-June and Bumud Pandu in January-February. The festivities are marked by colourful dances, with bison horns forming part of the dancers' head gear.

The higher hills of the Eastern Ghats in Orissa's Koraput district present a most colourful picture with the Bondas inhabiting the area north-west of the Machhakund river. This Adivasi tribe also known as Ramo, speak one of the most difficult Austro-Asiatic dialects. The Bondas are expert farmers and maintain vast irrigated terraced paddy fields on the rugged hill slopes. Their festivals are all connected with sowing and harvest, or else often associated with the selection of life partners. The Koraput hill tracts are also inhabited by the Gadabas, who are found in the adjoining areas of Andhra Pradesh and Madhya Pradesh too. They too are mainly agriculturists and their festivals are centred

around sowing or harvest.

This Santhals in Orissa are found mostly in Balasore and Mayurbhanj district, but sizeable Santhal population are also to be found elsewhere on the Eastern Ghats. There is quite a concentration of Santhal population in and around the Simlipal National Park area. Their main festival is the Makara Festival on 13 and 14 January every year at the time of Makara Sankranti throughout the country. As a harvest festival this naturally features a grand feast which goes together with lively music and colourful dances. Their language Snathali is one of the most widely spoken of all the Adivasi dialects.

The Juangs are a major tribe in Orissa's Keonjhar and Dhenkanal districts. Their language Kolarian is much akin to Mundari. Their main deities are Mahaprabhu (the Almighty Creator) and Basudha (the Mother Earth). Their most important festival is Magha Parba which corresponds to Magha Purnima in January-February. During this harvest festival several varieties of cakes are offered to Bana Devi while praying fervently for a good forthcoming crop season. People assemble in the evening for lively music and colourful dance programmes that continue through the night.

Music and dance are indeed the most vital aspects of tribal culture, on the Eastern Ghats of Orissa (and perhaps hilly regions anywhere in India). Each tribe has its own music and dance form, at the same time all the folk songs and dances reflects the rich cultural heritage, artistic skill and emotional qualities of the people.

From the Eastern Ghats to the Western Ghats; we now move on to Karnataka's Kodagu (Coorg) District which has a very rich heritage of folk culture. Every village in Coorg has its own village deity, whose local festival is held once a year. The village deity is usually Bhagavati, Mahadeva or Subrahmanya.

Local village festivals apart, there are three major festivals in Coorg. The Keil Muhurta festival in late August or early September marks the completion of paddy transplantation. This festival is of special significance

to the martial races, and begins with a display of the traditional armoury of the family in the morning. At the auspicious moment (Muhurta) incense is lighted before the weapons to which sandalwood paste is applied profusely. After the offering of festival delicacies is made to the armoury the feast is held, after which men spend the afternoon participating in shooting competitions or other athletic events.

The Kaveri festival is held in October on Tula Sankramana, i.e. the day the sun enters Libra. This festival features worship of the river deity Lopamudra (Mother Kaveri), who according to legendary tradition, took the form of a river to shower her blessing on the people. The Kaveri is considered the patron goddess of Coorg. On Tula Sankramana people bathe first at the Kannike-Kaveri confluence at Bhagamandala and then again at the Kaveri source at Talakaveri. People who have lost their parents offer *pinda* (rice balls) to their departed ancestors.

The annual paddy harvest in Coorg is marked by the Huttari festival which is the greatest festival of the Coorgis. This festival is celebrated on Vrischika Purnima (Agrahayana Purnima), i.e. the full moon between 20 November and 20 December. At the auspicious moment on this full moon night the head of the family dressed in typical Coorgi costume goes to the fields with family members, relatives and servants, loudly chanting prayers to the accompaniment of music and drums. Cutting a few paddy stalks, he brings the sheaf to the threshing yard and then to the house shouting "Poli, poli Deva" (Increase, increase O God). This is followed by a sumptuous dinner. Over the next three or four days the countryside is gay with performances of Kolata (dancing with short sticks).

We thus had some splendid glimpses into the diverse folk culture of our hill people throughout the country. The fairs and festivals of our hill people form a really valuable and inseparable component of our great country's rich cultural heritage.

ECOLOGICAL AND ECONOMIC ASSET

Mountains are indeed the very life-soul of our great country. We have seen how it is our mountains that make our country what it is geographically, climatically, ecologically and of course historically and culturally. India without its mountains would cease to be itself.

sources of any number of waterfalls and rapid flowing rivers and lakes, our hills and mountains are such a splendid source of hydel power which is pollution free and easy to tap.

Then is it not our sacred duty as good and proud citizens to preserve our hills and mountains in all their natural splendour and purity ? Surely it is, and the sooner we realise this the better.

However, the picture that emerges today is quite dismal. Lack of environmental awareness is resulting in the increasing encroachment on our ecological balance is assuming alarming, practically ecocidal proportions. What is shameful is the prevalence of so many vested interests that sustain this environmental murder of our hills and mountains. A look at any of our erstwhile coveted hill-stations makes this glaringly obvious. The heavy rainfall zones on the windward sides of our mountain ranges are becoming drought prone to a degree never witnessed before. The indiscriminate denudation of our hill forests has not merely eroded the verdant splendour of the hills but also accentuated soil erosion and the landslides menace. In such circumstances havocs caused by earthquakes too are made all the worse.

Trekking and mountaineering are wholesome forms of adventure

which surely deserve all encouragement. Yet there is something good and something bad in every little thing. The bee makes wax and honey too, but how it loves to sting! It is indeed a hard fact that when trekkers and mountaineers invade our mountains like swarms of bees, they cannot but make their own sting keenly felt on the mountain ecology. You may wonder what this sting is all about. The answer is obvious, viz. the sting lies in the tins, bottles and plastic bags that indiscriminately litter the mountain slopes to spoil their verdant glitter.

The environmental pollution through biodegradable matter can be tackled with civic sense, basic awareness and pride in our surroundings. Exposed garbage or mountaineer's own waste should be covered with mud.

Yet there is the more tricky problem posed by tins, bottles and plastic bags that are not biodegradable and hence an ever missing increasing eyesore of foreign matter disfiguring our mountain slopes. The solution to this needs a very durable, systematic long term approach to evolve the appropriate technology that totally replaces the present day containers with biodegradable containers. Our environment policy needs to be shaped on these lines. Once its implementation is successful and effective trekkers and mountaineers should be compelled to ensure that their disposable containers are all biodegradable.

Let us all rise to the occasion and work shoulder to shoulder as citizens of our republic to ensure the achievement of our noble goal of preserving our hills and mountains—and indeed our entire environment in all its God given beauty and charm.

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From time immemorial our mountains have played a prominent role in shaping the history and destiny of our country. They have provided an ideal retreat to both pilgrims as well as nature loving travellers seeking a relaxing break from the routine humdrum. They have been the very cradle of vast variety of flora and fauna. Our mountain ranges have sustained within our vast country a number of natural geographical divisions by acting as umbrellas or wind-shields. This book along with this provides details of people staying in such their culture, festivals, wildlife etc.

Chandrika Rao is a writer with many facets. She also has been a broadcaster.

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